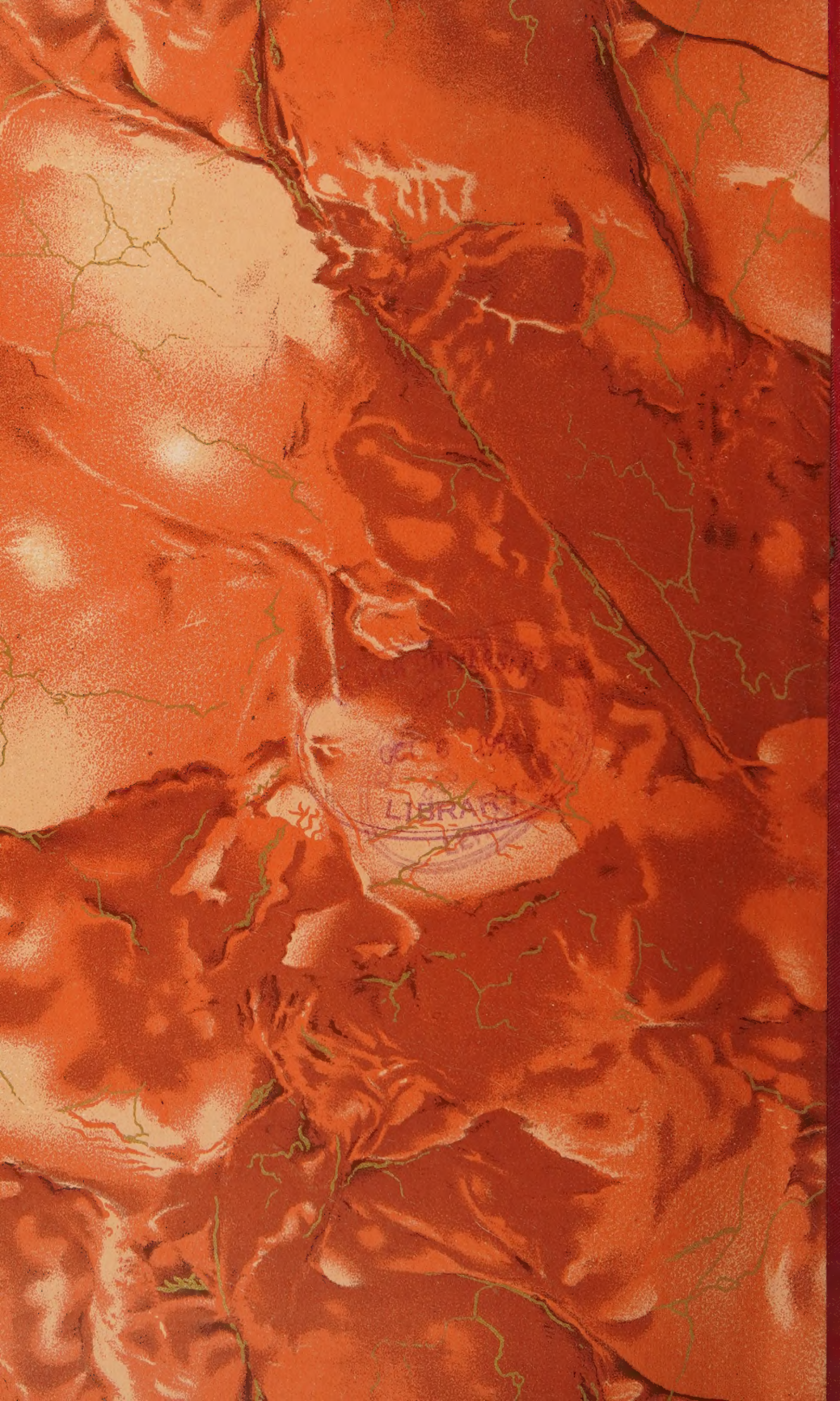

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Industry and Finance

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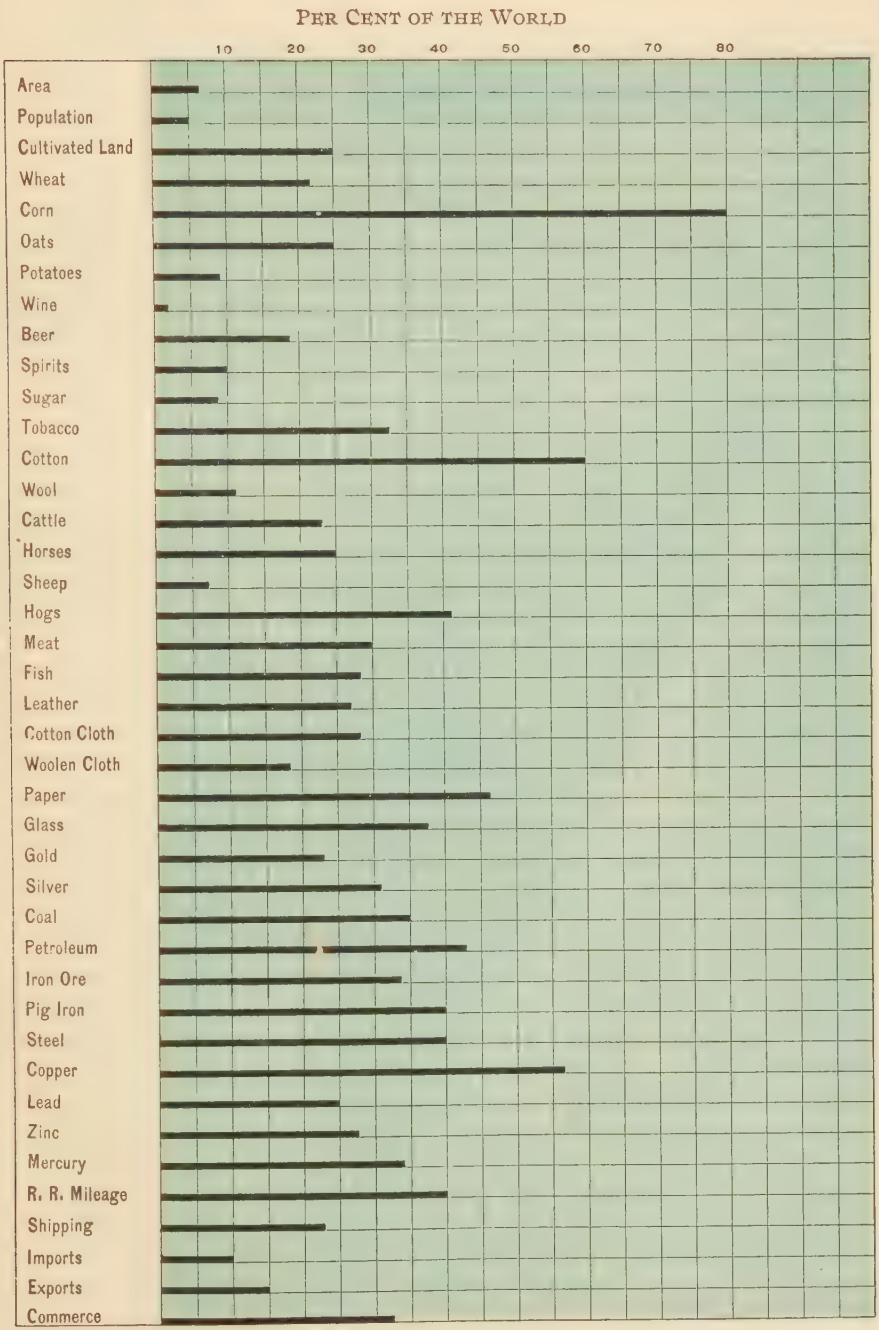

OUR INDUSTRIAL POSITION IN THE WORLD.

BY HENRY GANNETT.

[Henry Gannett, geographer of the United States geological survey; born Bath, Me., Aug. 24, 1846; graduated Lawrence Scientific school and Hooper Mining school of Harvard University; geographer of tenth, eleventh, and twelfth censuses; assistant director Philippine census, and since 1882 geographer of the geological survey; author of many articles in magazines and reviews chiefly on the resources of the United States, and of the following among other books: Commercial Geography, Building of a Nation, The United States, and Manual of Topographic Surveying.]

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The United States has 7 per cent of the land area of the earth, and 5 per cent only of the world's population. One in 20 of the people of the world owe allegiance to Uncle Sam. In numbers, we are exceeded by China, which has more than one fourth of the earth's inhabitants; the British empire, with nearly one fourth; and Russia, with about one twelfth. All the people of China and 85 per cent of those of the British empire represent an early civilization; the Russians promise a high civilization in the future; while the United States stands for the highest type of the civilization of to-day. After us in numbers are Germany, with 3.7 per cent of the earth's population; Austria-Hungary and Japan, with 3 per cent each; and France, with 2.5 per cent.

With only one twentieth of the earth's population, we have subdued and devoted to the use of man not less than one fourth of the cultivated land of the earth, that is, more than India or China, with their enormous populations; and our 400,000,000 acres of land under cultivation produce in such profusion as to give us pre-eminence in most of the products of agriculture. Of the wheat of the earth we contribute 22 per cent, which is more than any other nation. Russia produces but 15 per cent, and France but 12 per cent. We export from one fourth to one third of our crop to supply the deficiencies of Europe. Indian corn, one of the gifts of the new world to the old, still finds its home in American soil; for four fifths of the world's crop is grown in North America, and nearly all of it in the United States.

Oats are more cosmopolitan. We produce nearly one third, slightly exceeding the production of Russia, while Germany produces about three fifths as much as the United States.

Rye and barley are a different story. Of these two cereals the United States produces scarcely any, while Russia raises more than half the world's crop of the former and a fourth of the latter, leading the world in these two cereals. Of rice we produce but a trifling amount, in comparison with the enormous crops of China and India.

As with corn, so with cotton. Of this textile fibre the United States furnishes three fifths of the world's supply, while India contributes but one sixth, and Egypt one fifteenth. Two thirds of our crop goes to Europe, to supply the factories of England and the continent. Two thirds of the cotton manufactured in Europe is raised by negro labor in our southern states.

In the production of other fibres, the showing is not by any means so favorable to the United States. In the matter of wool, we are exceeded by Australia, Argentine, and Russia, which produce, respectively, 19, 15, and 16 per cent of the world's product, while the United States contributes only 11 per cent, and spends $20,000,000 annually in supplying her deficiency. Of raw silk we produce none; of hemp 4 per cent only, while Russia raises nearly half the world's supply; and of flax fibre very little. Here again Russia comes to the front, with nearly four fifths of the world's supply.

Potatoes we gave to Europe, and Europe almost monopolizes their cultivation, producing over nine tenths of the world's crop while the United States raises less than one tenth of it.

Our production of sugar from all sources—from the cane of Louisiana, Porto Rico, and Hawaii, and from beets—is but 8 per cent of that of the world. Of cane sugar, we raise about one fifth, and of beet sugar little more than half of 1 per cent. We spend $100,000,000 per year on imported sugar.

Of coffee and tea we raise comparatively trifling amounts, importing practically all we use; but in the production of tobacco we lead with 37 per cent of the world's product. In

the production of hops we are exceeded by Great Britain and Germany; our country producing but 18 per cent of the world's crop.

In the making of alcoholic liquors this country does not take high rank. Of the wine of the world, we contribute 1 per cent only; of spirits, 10 per cent; and of beer, 19 per cent. Germany and Great Britain exceed us in the brewing of beer, and France, Germany, Russia, and Austria in the manufacture of spirits.

In live stock, our standing is good. We have one fourth of the horses, or more than any other country except Russia; and nearly one fourth of the cattle, far more than any other country. We have only 7 per cent of the sheep, and here we are exceeded by Australia and Argentine; but we have more than two fifths of the hogs on earth. Our meat production is nearly one third that of the earth; our catch of fish is proportionately but little less; and both are far greater than those of any other country. Our dairy products are nearly one fourth of those of the earth, and nearly double those of any other country.

Summing up, it appears that of the entire agricultural product of the world, the United States produces 23 per cent—a little less than one fourth; while Russia produces 15 per cent, and Germany and France, 12 per cent each. This proportion of the agricultural product of the earth which is contributed by the United States, enormous when contrasted with her population and area, is further emphasized by the fact that for every man here engaged in agriculture, a product valued at $900 is contributed, while the average Frenchman produces but $580, and the average German, but $510, in agricultural products. In other words, the average American farmer produces over 50 per cent more than the citizen of any other nationality. This is due, primarily, to the fact that the farms of the United States have larger areas. The average farmer of this country cultivates 44 acres, while the Frenchman cultivates but 13, and the German but 8. On the other hand, farming is more intensive in Europe than in America, the product per acre being nearly twice as great; but with the abundance and cheapness of land and the high cost of labor

in America, it is plainly a good business policy for the American to get his crops by the use of much land, with a minimum of labor. He is enabled by the use of better tools and more machinery to work an area three or four times as great as the European cultivates. The American uses machinery in farming as far as possible; the European scarcely at all.

The position of the United States in the field of manufacture is, in many respects, quite as strong as in agriculture. Of the cotton cloth of the world we make more than one fourth, being excelled by Great Britain only. Of the woolen cloth we make nearly one fifth, excelling in that respect the mother country. Of linen, we make 27 per cent of the world's product—more than twice as much as Germany, our nearest competitor. Of the paper of the world we manufacture no less than 46 per cent—not much less than one half that of the world, three times as much as Great Britain, and nearly four times as much as France. Of glass, we make nearly a third of the world's product, while France, our nearest competitor, makes less than one fourth.

It is, perhaps, in the manufacture of iron and steel that our pre-eminence over other nations is more decided than in any other commodity. The time was, and not so long ago as to be beyond the remembrance of most of the present generation, when, as ironmakers, we were in an infantile condition. It is only a few years since we became the leading nation of the earth in respect to this, the most important, branch of manufacture. Now 34 per cent of the iron ore of the world comes from our mines; 39 per cent of the pig iron comes from our furnaces; and 40 per cent of the steel is produced in our crucibles and converters. There is no other country on earth that approaches this production. Germany's share in the world's product of iron ore is less than one fourth, and of pig iron only a little more than one fifth. Her steel product is only about two thirds as large as ours. Great Britain produces half as much iron ore and pig iron as this country does, and her steel product is little more than one third of ours.

Of all the manufactured goods produced on earth, the United States contributes more than one third, or 34 per cent. Our production of manufactured goods is nearly seven times

as great as our proportion of population. Great Britain contributes 15 per cent of the manufactured goods of the earth, Germany 12 per cent, and France 11 per cent.

These figures suggest an extraordinary efficiency for the American artisan, which is borne out by examination of the figures of production and of occupations. The average gross manufactured product, per hand, in the United States has a value of $1,900 per annum. The French artisan, under the same definition, produces $650; the English artisan, $485; and the German $450. In other words, the product, per hand, of the United States artisan is nearly three times as great as that of his nearest competitor. Of course, it is understood that these figures, although comparable with one another, are not correct as representing the value of the manufacturing processes. The value of the raw material should have been subtracted from that of the gross product before dividing it by the number of hands. This would, naturally, reduce the figures, but it would reduce them practically in the same proportion.

This enormous difference in efficiency between the artisans of the United States, on the one hand, and those of Europe on the other, which is due mainly to the universal use in this country of the most modern machinery and methods, enables us not only to hold our own markets, but to invade successfully the home markets of other countries, to send coal to Newcastle, steel to Sheffield, and cotton to Lancashire.

In mining the showing is still more favorable to us. Of course, in this branch of industry we enjoy the abundance of ores easily mined and worked, which fact is our chief advantage. Of the coal of the earth we produce 35 per cent—more even than Great Britain, which is now producing 26 per cent. Of petroleum we produce 43 per cent, exceeding the product of Russia. Of gold we produce 23 per cent, and of silver 31 per cent. Of copper we produce 56 per cent; our nearest competitor being Spain, with less than one eighth of the world's production. Of lead we produce a fourth; again Spain follows with a little more than one fifth. Of quicksilver we produce 34 per cent. Here we exceed Spain, whose mine at Almaden produces nearly 30 per cent of the world's supply.

Of zinc we produce 27 per cent, and here we are exceeded by the zinc region of western Europe—the Rhine provinces, Belgium, and the Netherlands, from which come nearly two fifths of the world's supply. Tin is the only metal of importance in the arts which we do not produce in quantity. Of the total of all the mining products of the earth the United States produces not less than 39 per cent, which is a far greater proportion than that of any other country.

The business of transporting passengers and goods from place to place is one of vast magnitude. It is estimated that $6,000,000,000 are annually expended by the world in such transportation. Of the agencies in use the railroads have come to be the chief. For the last two generations the United States has been busily engaged in building up a railroad system and developing its management, so that it now possesses a most effective and thorough means of internal communication. With our area of 3,000,000 square miles we have over 200,000 miles of railroads. Our railroads comprise not less than 40 per cent of the earth, and exceed in mileage those of all Europe.

Our shipping stands in nominal tonnage next to that of Great Britain. The latter country possesses 38 per cent of the tonnage of the world; the United States has 22 per cent. After the United States comes Norway and Sweden, which, with Denmark, has 10 per cent of the shipping of the world, less than half of the amount which sails under the United States flag. The next is Germany, which possesses 8 per cent only. It will be seen from this that although our merchant fleet is little more than half that of Great Britain, it is very large compared with that of other nations.

Summing up the earnings of the various agencies of transportation, it appears that, of the total amount of such earnings in the world, the share of the United States is very nearly one third, or 32 per cent. This is considerably more than double that of Great Britain, with 14 per cent; more than two and a half times that of Germany, with 12 per cent; and nearly three times that of France, whose share is 11 per cent.

The foreign commerce of this country does not bear as

high a proportion to its population as do its industries, for the reason that there are few commodities, either food materials, raw materials for manufactures, or manufactured goods, which are not produced in this country; so that there is little occasion for purchasing goods derived from foreign sources. Hence, our imports are small, being only 10 per cent of the total imports of all countries.

As to exports, we have first to supply our own people, and it is the surplus only which is sold to others. That surplus is, however, relatively large. It is far greater than the imports, the balance of trade being largely and continuously in our favor. Our exports are commonly 15 per cent of the total exports of all countries. Though only a small fraction of our products is sold abroad, perhaps not more than 10 per cent, still our exports are larger than those of any other country, exceeding even those of Great Britain.

THE PIONEERS OF AMERICAN INDUSTRY.

BY G. S. CALLENDER.

[Guy Stevens Callender, professor of political economy in Yale university; born Hart's Grove, O., Nov. 9, 1865; prepared for college at New Lynn institute; graduated from Oberlin, 1891, and Harvard, 1893, with graduate work at Harvard; instructor in economics Wells college, 1895–96; and in Harvard, 1897–1900; professor of economics in Bowdoin college, 1900–03, and since then in Yale university. The following article is published by special arrangement with the Quarterly Journal of Economics to which he is a contributor:] Copyright 1902 by George H. Ellis Company

It is a commonplace observation that the last century witnessed everywhere a great extension of the activities of the state into the field of industry. Americans are not accustomed to think of their own country as taking a very prominent part in this movement, much less as having ever occupied a leading position in it. To them, as to the rest of the world, America is the land of private enterprise par excellence; the place where "state interference" has played the smallest part, and individual enterprise has been given the largest scope, in industrial affairs; and it is commonly assumed that this was always so. It is true that even in colonial times the American people displayed an energy in their economic life which Burke declared was equalled by "neither the perseverance of Holland, nor the activity of France, nor the dexterous and firm sagacity of English enterprise." It is true, also, that for more than fifty years the federal government was in the hands of a party that professed to be afraid of strong government, that abolished the internal revenue system because it interfered too much with the private affairs of the citizens, and made the payment of the national debt a leading feature of its policy, lest its existence should breed extravagance and corruption in the government. Nevertheless, it is a fact that this country was one of the first to exhibit this modern tendency to extend the activity of the state into industry. And it advanced so rapidly and so far along this line that it became for a time almost as prominent an example of it as the Australian colonies are in our own time.

Not to mention the promptness with which our people turned from the free trade ideas of the revolution to the protective policy, when conditions seemed to require the development of manufactures, consider the action of both the federal and state governments towards the early transportation and banking enterprise of the country. Before any European government had projected a comprehensive system of state canals and roads, President Jefferson had called the attention of congress to such a policy, and Gallatin had submitted his famous report which outlined a complete system of roads and canals, and recommended that the federal government construct them directly or subsidize corporations for that purpose. Work was actually begun by the federal government on the Cumberland road in 1806; and it was ultimately prevented from carrying out Gallatin's plan, not so much by the opposition of the majority of the people as by the accident of hostile executive vetoes. As it was, the government for many years made liberal appropriations of money and public land to assist in the construction of the chief works recommended by Gallatin. To the adoption of a policy of internal improvement by the states there was no such obstacle, and here we find the movement working itself out without obstruction. Something was done by the states in the last decade of the eighteenth century to aid transportation enterprises. Virginia, Maryland, and New York voted money to assist in extending canal communication from the Potomac and Hudson into the interior. Pennsylvania voted a considerable revenue to improving the navigation of rivers and to subsidizing turnpike and bridge companies. But it was after the close of the second war with England that the states took up the work of internal improvement on a large scale. New York led the way with her Erie canal in 1817, and soon after expanded this into an extensive system of canals, reaching all parts of the state. Pennsylvania followed in 1825 with an equally extensive system of canals; Maryland, Virginia, and the federal government began the Chesapeake and Ohio canal in 1828; and Virginia as early as 1816 projected a canal to connect the James river with the Ohio, and after 1820 pushed its construction vigorously. A little later a number of railway

projects were undertaken; the Baltimore & Ohio in 1828; the Erie in New York and the Western in Massachusetts in the early '30's; while Virginia, South Carolina, and Georgia projected lines to connect their seaports with the western waters. The movement was taken up in the west in the early '20's, when Ohio began a system of state canals almost as extensive as those of New York and Pennsylvania, followed about ten years later by Indiana, Illinois, and Michigan, with extensive systems of both canals and railroads. Kentucky and Tennessee devoted considerable attention to the building of turnpike roads, and Kentucky especially to the improvement of the navigation of her rivers.

Nor were the transportation enterprises the only ones to receive the assistance of the states at this time. Almost from the first introduction of banks into this country, it became a common practice for the state governments to invest revenue in bank stock. Many of the early bank charters reserved to the states the right to subscribe for a portion of the authorized capital, and this right was in most cases exercised. The same policy was taken up in the western states about 1820. In these states, however, the funds invested in bank stock were not, as in the east, derived from revenue; but the states sold their bonds to secure the necessary funds. The first state to do this on a considerable scale was Louisiana in 1824; and between that date and 1840 the western and southwestern states, including the territory of Florida, issued over $65,000,000 of bonds to provide banking capital to corporations.

Thus during the first thirty or forty years of the century the federal and state governments became actively interested in a great number of the most important enterprises in the country. At the very time when the federal government was paying off its funded debt, in order that it might not become a permanent feature of our policy and thus tempt the government to extravagant expenditure, the states were creating a funded debt of more than $200,000,000—a larger debt than the federal government had ever owed, and the first large funded debt created by the government of any country for purely industrial purposes. It is the purpose of this paper to explain at length the conditions which gave

rise to this remarkable movement towards state enterprise here in America, where of all places in the world we should least expect to find it.

To form a correct judgment of the influences which produced this movement, it is necessary to understand the general character of our economic development during the period when it occurred. We will begin, therefore, with a brief sketch of that development during the first forty or fifty years of the nineteenth century. The most important event in our economic history during this period was the opening of the west. By the opening of the west I do not mean the early settlement of the region west of the mountains, which took place on a large scale during the thirty years after the revolution. This in itself, as I shall attempt to show, had very little influence upon the economic life of the country. I refer rather to that improvement in the economic condition of the west which set in about the time of the second war with England, and which in a decade or two entirely changed the relation of that region to the rest of the country, lifting it for the first time into that important place in our economic life which it has until recently occupied. This event marks the shifting of the center of interest in our economic activity from the ocean and foreign commerce to the interior and internal commerce. It was the ending of the colonial period in our economic development, and the beginning of what has been the chief object of our economic activity ever since; namely, the application of capital to the settlement of the interior and the development of its natural resources. In order to appreciate the significance of this change to the movement we are studying, it will be necessary to trace its history in considerable detail.

The settlement of our new territory and the pushing of the frontier back into the interior are features of American life which began in colonial times. At the end of the revolution the back country of Pennsylvania, Virginia, and the Carolinas was full of people, and had its special frontier characteristics in industry and social life. Following the revolution, these backwoodsmen and many emigrants from the tide water region, who had been ruined by the war and the exhaustion

of the soil, moved into the region west of the mountains. The census of 1790 showed 109,000 people in Kentucky and the region south of it, not to mention those who had settled in western Pennsylvania and Virginia, which must have amounted to as many more. According to the census the western states and territories contained 387,183 inhabitants in 1800; ten years later they contained 1,075,398; and in 1820 2,207,476. To get the total western population, it is necessary to add the number of inhabitants of western Pennsylvania and Virginia, which in 1820 amounted to 248,476 and 147,531 respectively, making a total for the whole west of 2,603,483. During the same period there was a great emigration to the wild lands of northern and western New York, as well as northern New England. In 1790 the census showed only 1,075 people in New York west of Seneca lake; in 1800 there were still but 17,016; by 1810 this number had risen to 72,000; and in 1820 to 211,000. These figures show how large a movement of people from the older communities into the interior took place during the thirty years following the revolution. There must have been between one and a half and two million people living west of the mountains at the outbreak of the war of 1812.

Great as was this movement of people into the west, its economic influence was very slight. The general character of the industry of the country remained what it had been since colonial times. The west at that time had few economic prizes to attract settlers. To the emigrant from the tide water region it offered a refuge from the pressure of hard times, where he could easily gain a rich subsistence for a numerous family. To the backwoodsman it could add to this the wild, free life of adventure which was so attractive to men of this class. But to the investor or the man who wished to make a fortune it had as yet hardly anything at all to offer. Consequently, its settlement could have little economic influence upon the country as a whole. A little consideration of the conditions upon which the prosperity of a newly settled country depends, and a comparison of these conditions with those prevailing in the west at this time, will make this sufficiently clear.

Since Adam Smith's time, economists have generally accepted his explanation of the prosperity of newly settled countries. "The colonists carry out with them a knowledge of agriculture and of other useful arts, superior to what can grow up of its own accord in the course of centuries among savage and barbarous nations. . . . Every colonist gets more land than he can possibly cultivate. He has no rent, and scarcely any taxes to pay." . . The application of this efficient labor to the abundant natural resources is supposed to result always in a large production of wealth. . . . "The colony of a civilized nation which takes possession, either of a waste country or one so thinly inhabited that the natives easily give place to the new settlers, advances more rapidly to wealth and greatness than any other human society." This explanation, though it appears to account for the prosperity of new countries, does not in reality do so; for it quite overlooks the fact that these conditions have not always resulted in rapid progress in wealth. The mere presence of a certain number of industrious people in a country abounding with fertile soil, forests, mines, and fisheries, by no means insures a rapid development of these resources and a consequent large production of wealth. The economic advantages possessed by a people so situated consist simply in the ability to produce food and raw materials with a small outlay of labor. Before they can utilize these advantages, certain favoring conditions must be present. They must be able to dispose of these commodities in exchange for the commodities which they cannot so easily produce—in a word, they must have a market.

Theoretically, it is possible for the new country to secure this market by the development of manufactures at home, whereby a non-agricultural population is created; and it might conceivably be better for the community, both socially and economically, to secure its market in that way. But, practically, it is very difficult, if not impossible, for it to do this; and in any case the process of doing it would be so slow that the "advance to wealth and greatness" must be much less rapid than that of new countries is commonly supposed to be. Manufactures on a large scale cannot be carried on without a permanent wage-earning class; and in a community

in contact with cheap, unoccupied land, where every one can easily become an independent proprietor, it is almost impossible to create such a class. The social attractions of land ownership outweigh those of high wages. Every one has heard of the difficulty which was encountered in this country during colonial times and the early part of the nineteenth century in securing laborers to work for hire. Franklin tells us that even the Scotch-Irish immigrants to Pennsylvania, who had been trained as artisans at home, would not continue more than a few years in that capacity; the early textile manufactures in New England had to depend chiefly upon female laborers, whose average period of service was less than five years; while the greatest difficulty was experienced by all the states in securing common laborers to construct the early canals. The creation of a wage-earning class in the north was in fact very slow and very difficult before the flood of immigrants came in, and the chief economic advantage of immigration to this country consisted not so much in the fact that the immigrants represented an actual addition to our laboring population as that they supplied material out of which we could easily create a wage-earning class at the time when we needed to organize labor in order to construct our railroads and develop manufactures. In the south, where even agriculture required the organization of labor in order to be conducted most efficiently, the difficulty or impossibility of inducing the whites to become wage earners while they were in contact with cheap land is undoubtedly the chief reason why the cotton industry in this country was developed by slave instead of by free labor.

This difficulty of inducing men in a new country to give up the position of an independent proprietor and become a dependent wage earner does not prevent the development of small manufactures, which are necessary for the immediate and pressing wants of the community, and require no great organization of workmen for their production. If the community for any reason is unable to secure these by trade, the manufacture of them will usually arise, as it did to some extent in the northern colonies in the eighteenth century. But the development of manufactures is not likely to go much be-

yond this, or, if it does, that development is sure to be very slow so long as the cheap land continues. Under such conditions there will be much rude comfort among the inhabitants and no lack of the necessities of life. But the community cannot advance rapidly in the production of wealth and the accumulation of capital; division of labor and development of skill do not take place; town life does not rise; and social and economic progress is slow. It may even happen that a community suffers a decline in both its economic efficiency and social life, if compelled to remain for several generations under such conditions. The Boers of South Africa and the southern mountaineers are good examples of what may happen to a new community which remains for a long period of time in contact with cheap land and dependent upon the development of manufactures within itself for its economic prosperity.

It is evident from this that the condition necessary to enable the settlers of a new country to utilize their rich natural resources, and so to advance rapidly in wealth and social well-being, is a market for the commodities which its natural advantages enable it to produce cheaply. It must have commerce with the outside world. In the history of modern colonization it is impossible to find a new settlement which has made great progress in wealth where this condition of a market for its products has not been supplied. All the leading colonies have been concerned in the production of some two or three commodities for which there was already a demand in the markets of the world. It was so with the colonies of all the European countries in the sixteenth, seventeenth, and eighteenth centuries, which were concerned almost entirely with the production of precious metals, tropical and sub-tropical products, like sugar, tobacco, rice, cocoa, and dyestuffs, and a few products of the temperate zone, like furs, fish, and naval stores. These were the only commodities which Europe wished to buy of new countries at that time; and the colonies in many cases came into existence and in all cases grew in wealth because they could produce to supply this demand. The New England and middle colonies are no exception to this rule; for, though they had few markets in Europe, the rise of the West India sugar industry, based on slave labor,

supplied the market which created their prosperity. Of course, the founding of many of the colonies was due to other than economic motives; but the subsequent progress of these colonies in wealth was due to the rise of markets for their products. The same thing is true also of the great colonies and new countries of the nineteenth century, like Australia, South Africa, the Canadian northwest, California, and Argentina, whose economic progress has been primarily due to the rise of a market in old countries for wheat, meats, cotton, wool, and such commodities. There has always been a demand for gold and silver, and that accounts for the great part which their production has played in the settlement of new countries.

Let us see now what were the conditions existing in the west before 1812, and how far they correspond to those we have found to be necessary to secure the prosperity of a new community. Separated from the eastern seaboard by complete lack of water communication, the western people were unable to send any of their produce to the eastern cities, except a few cattle, hogs, and horses, which could be driven to market over long distances, and a few commodities like furs, which could stand the expense of land carriage. They were compelled, therefore, to depend almost wholly upon such markets as could be found at the mouth of the Mississippi. With the exception of a small amount that went from northern Ohio and western New York, nearly all western produce was sent down the rivers to New Orleans. Not only was this an expensive and dangerous voyage before the days of steamboats, but there was very little demand for the produce of the west when it arrived at New Orleans. The population on the lower Mississippi was very small, and required little, if any, western produce for its own consumption. The rest of the produce had to be sent around by sea to the Atlantic cities or exported to the West Indies, Mexico, or Europe. The total value of the produce received at New Orleans in 1807 was only $5,370,000, and by 1816 it had increased to only $8,773,000. Thirty nine per cent of this in the latter year came, however, from Louisiana and the lower Mississippi. The remainder represents the chief part of the exports of an

agricultural community of nearly two million people, an average of only about $2.70 per head of population. The number and size of towns in the west at this time is another convincing proof of the slight development of trade which had taken place. The only town of any considerable size in the whole west was New Orleans, through which passed the bulk of the exports and a considerable part of the imports. This town had 24,562 inhabitants in 1810. Pittsburg, from which was distributed the larger part of the imports, and which contained the most important manufactories in the west, had only 4,768 inhabitants; Lexington, which carried on nearly all the commerce of Kentucky and Tennessee, had only 4,326 inhabitants; and Cincinnati had only 2,540. The other commercial places like Louisville, Nashville, Natchez, and St. Louis, were little more than mere villages, with about one thousand inhabitants each. The significance of these figures will appear more striking if we compare them with similar ones for some new communities of later times. In 1891 the two colonies of Victoria and New South Wales, whose industry was almost entirely agricultural and pastoral, had an average export of $20 per inhabitant. Washington and Oregon, with a population of 663,198 in 1890, had commerce enough to build up four cities with an aggregate population of 145,150, besides several smaller towns of from 1,000 to 4,000 inhabitants. Kentucky and Tennessee had in 1810 almost exactly the same population—namely, 668,238; and the town which is said to have carried on the larger part of their commerce had but 4,326 inhabitants.

With regard to manufactories there were, as we should expect, a great number of small, local ones, producing articles of prime necessity. Almost every community had one or more grist and sawmills; and very many had forges, tanneries, and salt works, fulling and carding mills, and paper mills. In Pittsburg, Lexington, and Cincinnati there were a number of industries that were not purely local in character. But the size of these towns, which were more largely commercial than manufacturing centers, show how small were these industries; and travellers did not fail to note the obstacles which retarded their further growth. Michaux comments on the high price

of labor, and says it "is occasioned by the inhabitants giving the preference to agriculture, there being but few who put their children to trade, because they require their assistance in their own employment."

Such was the condition of the west before the war of 1812, and its economic relation to the rest of the country. Turn now to the changes which followed the war and their effect upon the west, and through it upon the country at large. As we have seen, the chief obstacle to the prosperity of this section was the lack of a market. Two events soon removed this obstacle, and started the whole country forward on its remarkable career of development. The first was the introduction of the steamboat; the second was the extension of cotton culture into the southwest. The steamboat was introduced on the Ohio at Pittsburg as early as 1811; but it was six years later before it had demonstrated its ability to stem the rapid current of western rivers. With that event the western country was suddenly supplied with a system of transportation which reached wide stretches of country, and brought them into easy communication with the seaboard. With the rise of the cotton industry in England and Whitney's famous invention in this country, cotton culture began its amazing growth.

For more than twenty years it was confined almost entirely to the eastern seaboard. A small amount was raised about New Orleans in Louisiana, near Natchez in Mississippi, and near Nashville in Tennessee; but in 1802 only 29,000 bales were exported from New Orleans, and this had increased to only 37,000 in 1816. About the latter date cotton planters began to turn their attention for the first time in considerable numbers to the southwest. The great body of fertile soil in this region suited to the cultivation of this staple, the numerous navigable rivers, coupled with the fact that cotton, having large value in small weight, could bear the expense of land transportation to the rivers from a long distance over poor roads, combined to make this extension of cotton culture into the southwest the source of the greatest profits in agriculture which the American people had ever enjoyed. A flood of emigrants from the older slave states now poured into this

region. Alabama and Mississippi did not contain more than 75,000 people in 1816. Only four years later their population was 200,000, and it more than doubled during the next ten years. Louisiana, which contained about 76,000 people in 1810, had 143,000 in 1820, and 215,000 in 1830. Certain parts of Tennessee, Arkansas, and Florida, where cotton could be raised, were settled with equal rapidity. New Orleans was the great central market to which the cotton product of this region was sent; and it received, as we have seen, only 37,000 bales in 1816. That amount rose to 161,000 bales in 1822, 428,000 bales in 1830, and reached 923,000 in 1840. The cultivation of sugar in Louisiana was also increasing at this time, and was equally profitable.

The effect of this extension of cotton and sugar cultivation into the southwest upon the southern states is well known. It opened up a very profitable field for the employment of the labor and capital of this section, and this economic advantage went chiefly to the revival and extension of the slave system. But its effect upon the northern states, especially the newer states of the northwest, has hardly received the attention its importance deserves. In reality, it was that movement which gave to them their first important market, and thus supplied the one remaining requisite to their economic development. The use of slave labor on a large scale not only prevents the rise of manufactures, but it always causes a curious territorial division of labor in agriculture as well. Slave labor, to be efficient, must be carefully supervised; and its maximum efficiency is therefore obtained only in those branches of agriculture which permit the close organization of labor. For this reason every slave community devotes itself for the most part to the production of a few staples, like cotton, sugar, tobacco, or rice, and finds it cheaper to purchase its food and other agricultural supplies, as well as its manufactured articles, from free labor communities. This gives rise to a trade in agricultural commodities between the slave communities and other agricultural communities. The important trade between the northern continental colonies in the eighteenth century and the West Indies was a trade of this kind; and it was principally the development of the sugar colonies of the West Indies by slave labor,

and the consequent dependence of these colonies on other communities for food and raw material, which provided New England and the middle colonies with their most important market. In exactly the same way the introduction and spread of cotton and sugar culture into the southern part of the Mississippi valley led to a division of labor between the planters of the south and the farmers of the north, and gave rise to an important trade in agricultural produce upon the western rivers of the same character as that which went up and down the Atlantic coast during colonial times between the northern colonies and the West Indies.

The development of this trade between the cotton planters and the farmers began with the first introduction of cotton culture into South Carolina and Georgia. Ramsey tells us that down to about 1793, when cotton began to be raised in South Carolina, that state produced both wheat and corn for export. By 1807, however, the greater profit to be earned in the production of cotton had attracted labor and capital to that industry, and the state was importing both wheat and corn. Olmsted said in 1856: "The slave labor of the state [South Carolina] is almost exclusively devoted to the culture of cotton and rice. Live stock, meat, corn, breadstuffs, and forage, though the soil and climate of a large part are entirely favorable to that production, are very largely imported; and for nearly all sorts of skilfully manufactured goods the people are quite dependent on the free states. Trade and skilled labor of all sorts is mainly in the hands of persons from the free states or foreign countries." Live stock was raised in great numbers in the back country of the southern colonies in the eighteenth century, and was a considerable item of export; but, after the introduction of cotton culture, horses, mules, and swine were imported into these states from Kentucky and Tennessee. This trade had become very large by 1825, and played a considerable part in the discussion over the tariff and nullification in the years following. In the southwest the same tendency to concentrate attention upon the two great staple products, sugar and cotton, and to procure food and other supplies from the north, showed itself even more strongly than in the east. Flint says of Louisiana

in 1825 that "corn, sweet potatoes, melons, and all northern fruit, with the exception of apples, flourish here; though the planters find the great staples, cotton and sugar, so much more profitable than other kinds of cultivation that many of them calculate to supply themselves with provisions almost entirely from the upper country." An English traveler in the southwest in the '50's had a similar comment to make: "Strange to say, it is more difficult to raise the requisite quantity of provisions for a southern plantation than to manufacture wagons, plows, houses, and articles of clothing. The bacon is almost entirely imported from the northern states, as well as a considerable quantity of Indian corn."

The extent of this commerce between the northwest and the south it is impossible to ascertain with accuracy, for there are no reliable statistics of it as a whole. The rapid growth in the number of steamboats on western rivers, especially the number running between the Ohio and upper Mississippi and New Orleans, indicates a corresponding increase in the trade between these sections. Steamboats on the western rivers increased from 20 in 1818 to 200 in 1829, 450 in 1842, and 1,200 in 1848, while their size and carrying capacity was also increasing. Besides this a large amount of flatboat tonnage existed, and a considerable part of the produce of the Ohio valley was sent to market by this means. In 1845 the flatboat tonnage amounted to 620,000 tons, and the steamboat tonnage to 1,262,000 tons. The number of steamboat arrivals at New Orleans from the Ohio and upper Mississippi are not separated from the total arrivals before 1859, but in that year they were about 1,500 out of a total of 4,000. The value of the produce received at New Orleans increased from $8,700,000 in 1816 to $26,000,000 in 1830, $50,000,000 in 1841, and $185,000,000 in 1860. Between 1816 and 1820 about 61 per cent of this tonnage was from produce from the northwest. The proportion, though not the total amount, of farm produce declined until it reached 28 per cent in 1860. The steady growth of the river towns which handled this trade also indicates its growth. Thus Cincinnati increased from 9,600 in 1820 to 115,000 in 1850, Louisville from 4,000 to 43,000, and St. Louis from 4,900 to 77,000. It was estimated in 1845 that

during the twenty years previous planters had spent $900,000,000 in neighboring states for mules, horses, implements, and clothing. These are but rough indications of the extent of this trade; but they are sufficient to establish the fact that it was very large, and that it grew up almost entirely after 1815.

The influence of this extension of cotton culture upon the north was not confined to the agriculture of the northwest. It affected every other northern interest as well. The prosperity which it brought to the whole southern and western population increased their ability to purchase such manufactures as they required, and thus provided eastern manufacturers with a rapidly expanding market. This was the great influence which caused the steady growth of manufactures from 1816 to the civil war, both under the protective policy of the earlier and the low tariff policy of the later years. Commercial interests also received great stimulus. The internal trade of the country sprang at once into commanding importance. A large and prosperous agricultural population in the south and west was devoting itself to the production of valuable crops of food and raw material, and exchanging them with the northeastern states and Europe for manufactures. This trade opened new opportunities for the merchant, the banker, the shipowner, the insurance company—to the whole commercial class, in fact. The fact that all the capital which the south accumulated was put into cotton culture left this whole field open to the commercial capital of the northeast. An eager rivalry arose among the commercial cities of the seaboard to secure a share of this internal trade, and each appreciated that its future position would be determined chiefly by the success of its efforts in this direction.

The effect of all these changes upon the economic condition of the country at large was almost revolutionary. It opened the eyes of the people to the economic possibilities of their situation, and turned their attention for the first time to the exploitation of their natural resources. The west ceased to be a mere refuge of poverty and field for the adventure of pioneers. The enterprise and capital of the country turned away from the ocean and foreign commerce, and found here

a new field for its operation. One of the most striking features of the new period was the increase of speculative activity everywhere in American industry. This was largely the result of the enormous increase in land values, to which the changes we have described gave rise. The choice cotton lands of the southwest and the coal lands of eastern Pennsylvania suddenly became worth fabulous sums. Along the canals and rivers, especially in western New York and central Ohio, farm produce more than doubled in value; and the value of the land rose correspondingly. From New York on the east to New Orleans on the west, new towns were springing up along the lines of trade, and old ones growing with a rapidity that was new in American experience. The population of New York increased from 123,000 to 203,000 in the ten years from 1820 to 1830; New Orleans, from 27,000 to 46,000; Cincinnati, from 9,000 to 24,000; and Louisville, from 4,000 to 12,000. Buffalo and Rochester were hardly in existence in 1816; in 1830 they had 18,000 inhabitants. The number of villages along the New York canals increased from 55 to 105 between 1817 and 1833. Of course, the growth of all these cities and towns caused a corresponding increase in the value of real estate. That of New York went up from $69,000,000 to $165,000,000 in ten years, and the increase in many others was still greater. It is easy to see how all these things would foster speculation. Josiah Quincy declared in 1826 "that the enormous increase in wealth without labor which has come to fortunate speculators since 1815 seems to make the invocation of chance legitimate business."

We are now in a position to understand the economic forces which were acting in this country during the early part of the nineteenth century, and to judge correctly of the causes which led the American people at that time to make so large a use of the powers of the state to assist industries. There are three matters which need to be considered in this connection, in order to bring out the situation which produced the movement. The first is the great increase in the demand for capital which accompanied the opening of the west; the second is the supplies of capital which were available at that time to satisfy this demand; and the third is the obstacles which prevented

this capital from being secured and applied to the various projects of the time by the ordinary agency of private enterprise, the corporation. We will take up each of these matters in turn.

The effect which the economic changes described above had upon the demand for capital may best be shown by comparing the chief enterprises in which capital was invested before 1815 with those that arose after that date. Demand for capital in any community means the existence of numerous opportunities for its profitable investment. Such opportunities had always existed in America in sufficient numbers to absorb all the capital that could be obtained, and interest had been high; but these opportunities had been confined for the most part to enterprises connected with commerce, to mercantile transactions, banking, insurance, shipping, and, to a small extent, manufactures. The people had not found it profitable to risk much capital in enterprises designed to promote the settlement of the country and the exploitation of its resources. The principal ways in which capital is applied to a new country for this purpose is in constructing works of transportation, canals or railroads, and in supplying advances of goods through commercial credit or making loans of cash to settlers to enable them to clear and cultivate the land. In Pennsylvania and the states north of it considerable progress had been made in building turnpike roads during the ten or fifteen years prior to the war. But the improvement of rivers and building of canals, which alone could enable remote regions to send their produce to market, had been almost entirely neglected. Numerous efforts had been made to induce capital to take up this work, but with very little success. Two small canals, one in Massachusetts to connect Boston with the Merrimac river, the other in South Carolina to connect Charleston harbor with the Santee river, were all that had been completed. An imperfect canal navigation had been opened from the Hudson to Lake Ontario, and the navigation of the Susquehanna, Potomac, and James rivers slightly improved. The capital for these works had been secured with great difficulty; and many similar projects, like the Delaware & Chesapeake, the Delaware & Schuylkill, and the Schuylkill & Susquehanna canals,

had secured no capital at all. In the settlement of the west and the development of its resources, men were even less inclined to risk their capital. I have found no evidence that any eastern capital was invested in this way before 1815. The settler moved out into the wilderness with his own little stock of household goods, farm implements, and cattle. No merchant with large credit in the east stood ready to advance supplies of food and other necessaries to him, while he devoted his labor to the production of a crop to be sent to market, nor was he assisted to clear his land and prepare it for cultivation by loans of cash from individuals or mortgage companies. Of course there were banks in the new states; but most of them were mere paper money machines, with no capital at all, and those that had a real instead of a nominal capital had to depend more upon local than upon eastern supplies.

After 1815 the situation began to change. As the settlement of the west took on a different character with the improvement of its economic condition, enterprises designed to promote its development received much more attention from the business men of the country. Not only was the utility of such works to the public more clearly perceived, but the possibility of their yielding a profit to the investor appeared less remote; and, as a result, many more such projects came into existence. The commercial cities of the seaboard were the first to be affected. They had long been interested in western trade, and some of them had made efforts to improve their communications with the west; but the trade before 1815 was comparatively small, as we have seen, and, with the exception of a canal of little value from the Hudson to Lake Ontario and some little improvement in the roads from Philadelphia and Baltimore to the Ohio river, nothing had been accomplished. They now took up the matter in earnest. New York was the first to act, and in two years after the close of the war was ready to break ground on a canal to connect the Hudson with Lake Erie, and another to connect it with Lake Champlain. Virginia established a board of internal improvements in 1816, and began the James river & Kanawha canal in 1820; Pennsylvania commenced the

construction of a canal to connect the Susquehanna river with Pittsburg with a portage railroad over the mountains in 1825; Maryland, Virginia, and the federal government undertook to build the Chesapeake & Ohio canal to connect the Potomac and Ohio rivers in 1828; and a legislative committee recommended a canal to connect Boston with the Hudson as early as 1826. With the advent of the railroad a new crop of projects to reach the west arose. The Baltimore & Ohio was the first, begun in 1828; a few years later the Massachusetts project of a canal to the Hudson was changed into the Western railroad from Worcester to Albany; New York planned the Erie railroad to connect New York harbor with Lake Erie; Virginia proposed to reach the west by a railroad from Lynchburg on the James river canal southwest to the Tennessee river; Georgia was to reach the west by extending her local railroads from Atlanta to Chattanooga; while South Carolina, Kentucky, and Tennessee united to further the construction of the Louisville, Cincinnati & Charleston railway to connect the Ohio river with the south Atlantic seaboard. Besides these larger works there was a multitude of smaller ones in nearly all the eastern states. Not to mention turnpike roads, there were the Blackstone and Farmington canals in New England, the former to connect Providence with Worcester, and the latter New Haven with the Connecticut valley. New York and Pennsylvania planned a network of lateral canals connecting their main works with all parts of these states. The development of the anthracite coal industry began immediately after 1815, and led to a series of canal projects in New York, New Jersey, and Pennsylvania. The Schuylkill navigation was the first, beginning in 1815, and followed about 1825 by the Lehigh Navigation and the Delaware & Hudson, and Morris canals. The Raritan canal was also projected a little later, to connect New York and Philadelphia. A great number of small canals and river improvements were undertaken in Maryland, Virginia, and the states south of them. The Delaware & Chesapeake and Dismal Swamp canals were the largest of these. The local railway projects were numerous

in all the states after 1830, particularly in Massachusetts, New York, and Virginia.

In the west the transportation enterprises were scarcely less numerous or magnificent. The most important works were to connect the lakes with the Ohio and Mississippi rivers, while the rest were either branches of the main lines or shorter lines designed to connect the interior of the states with the lakes or the rivers. The first to be undertaken was the Ohio canal from Cleveland to Portsmouth, which was begun in 1825; the Miami canal from Cincinnati to Dayton was begun at the same time, but was soon after extended to Toledo, making a second line from the lake to the Ohio river; the Muskingum river was made navigable from its mouth to its junction with the Ohio canal at Dresden; and two canals were built from the Ohio canal eastward to connect with the canal system of Pennsylvania. In western Pennsylvania a line was built from Beaver on the Ohio river to Erie on the lake. West of Ohio the Wabash canal was projected from the Miami to the navigable waters of the Wabash, thus connecting Lake Erie with the Ohio by a fourth route. The Illinois & Michigan canal from Chicago to the Illinois river made still another connection between the lakes and the river system of the west. Besides these, many smaller canals were projected and partially constructed: the Whitewater canal northward from the Ohio river to the national road in eastern Indiana; the Central canal of Indiana through the state from the Wabash canal to Evansville on the Ohio river; several branches to the Ohio canal; the Sault canal and one across the lower peninsula in Michigan; the Louisville & Portland canal around the falls of the Ohio; a canal around the Muscle Shoals of the Tennessee in northern Alabama; the improvement by slack water navigation of the Kentucky, Licking, Green, and Barren rivers in Kentucky. These improvements, together with the rivers and lakes, made up a network of navigable waterways for the west quite equal to anything then to be found in the world. About the middle of the '30's several of the western states also projected important railway lines. Michigan undertook to build two lines across the state to connect Lake Erie with Lake Michigan. Illinois planned and began the con-

struction of the Illinois Central to connect the Illinois and Michigan canal at La Salle with Cairo on the Ohio river, with numerous branch lines to the east and west, reaching all parts of the state. There was one line each in Indiana and Kentucky, from Madison on the Ohio to La Fayette on the Wabash canal in the one case, and from Louisville to Frankfort in the other. In Ohio, Kentucky, and Tennessee great numbers of turnpike roads were projected. Capital was required also for the expanding internal trade of the country and to assist in a more rapid development of western agriculture. This showed itself in the establishment of numerous large banks in all the new states, to which reference was made at the beginning.

It is clear from this that the twenty years following 1815 was marked by an enormous increase in the demand for capital. All these enterprises were not mere visionary projects, to be talked about and then abandoned; but capital was invested in every one of them, and the larger part of them were actually carried through. If we compare them with the small number and size of the enterprises carried on during the twenty years before 1815, we are struck at once by the contrast. They evidently mark the beginning of what we may call the capitalist era in American industry. With the exception of banks, whose capital is in fact not invested in a single industry, but divided up in loans among a great number of different industries, there had never been an industrial undertaking in the country that called for as much as a million dollars capital. Moreover, the fixed capital accumulated in this country was up to that time insignificant. The people knew nothing of large enterprises in which great amounts of capital had to be sunk, and profits awaited for a long period of years. The canal and railway projects to connect the eastern cities with the west, and the lakes with the Ohio and Mississippi, required from two or three to ten millions dollars; and years must elapse for the country to settle and trade to develop before they would yield their maximum return. The new demand for capital was not only vastly greater than anything hitherto known, but it was for large masses of capital to be sunk, and therefore all risked in a single enterprise.

So much for the extent and character of the demand for capital which arose at this time. Let us see now what supplies of capital were available for investment in these enterprises. There were of course but two sources of supply—the savings of our own people and such surplus capital as foreigners could be induced to lend us. Regarding domestic capital the situation had greatly improved during the generation prior to 1815. In the colonies, as in all new countries, there was no considerable fund of loanable capital. Such capital as existed was chiefly in the form of trading capital or shipping, and was used by its owners themselves rather than lent out by them to other persons. But even the trading capital of the colonies was by no means all owned by Americans. Adam Smith says that the greater part of the exports and coasting trade of the colonies was carried on by capital of merchants residing in the mother country; and even the warehouses and stores from which goods were retailed in some colonies, particularly in Virginia and Maryland, were owned by the same parties. The complete lack of commercial banks in the colonies goes far to confirm the truth of this statement. Goods were sold on long credits of a year or more by English merchants, and the bills either carried by them until collected or else discounted by bankers in England. There was thus no basis for commercial banking in the colonies. It was estimated that Americans owed English merchants $28,000,000 for goods at the outbreak of the revolution. After the revolution English merchants relied upon their ability to grant longer credits than the merchants of other countries could give, to secure control of our trade; and the conditions which had preceded the war were promptly re-established. Madison declared in 1785 that England had never monopolized the trade of Virginia more completely than she did at that time. The events which changed this situation were the outbreak of the wars in Europe and the rise of the cotton industry. By throwing into our hands a vast carrying trade, and by supplying us with markets for cotton and foodstuffs, these events furnished Americans an opportunity to accumulate capital, which they eagerly embraced. The trading capital of the country now for the first time passed into the ownership of our own citizens, and it is

significant that this period marks also the rise of commercial banking as well as of marine insurance in this country. The growth of our merchant marine, the numerous small manufactories which sprang up after the embargo, as well as the beginning of turnpike and bridge building, all indicate the progress which was made at this time in the accumulation of capital.

Still another circumstance contributed to the increase of our resources during this period. The rapid payment of the national debt, both before and after the war of 1812, had the effect of augmenting the capital available for investment. Between 1815 and 1830 the government collected in taxes $123,500,000, and paid it over to the owners of its bonds. In this way small sums were taken from many individuals, and put into the hands of that class in the community who are by nature and habit disposed to save. If these small sums had remained in the hands of the people, they would, for the most part, have been spent, especially since the machinery for collecting small savings of large masses of people, such as is provided by the savings banks and life insurance companies, did not then exist. Of course, so far as the national debt was owned abroad, its payment would not have the effect of increasing capital. On the contrary, it might have the opposite effect of driving capital out of the country, unless other securities could be furnished, which the foreign investor would be willing to purchase. Such securities were provided by us during the period we were paying off our national debt most rapidly; and little, if any, foreign capital was lost by the payment of the debt.

It is evident from these facts that after 1815 this country had a considerable fund of domestic capital available for constructing its public works. In the newly settled communities of the west and southwest there was little or no such fund; but in the east, especially the southern New England and middle states, and, to a less extent, in Virginia and South Carolina, it was possible to raise quite large amounts, enough probably to construct the more important works required. Certainly this was the case in New York, where the canal commissioners reported in 1817, that they entertained no

doubt but that as much money can be obtained in this country as may be required for the canals on the credit of the states, at an interest of 6 per cent, by the creation of a funded debt. All the earlier loans for the New York canals were made without difficulty; and the capital secured was chiefly, if not wholly, domestic.

But it was not upon domestic capital alone, or chiefly, that the country had at this time to depend. It was able to draw also upon Europe, and more especially upon England. This circumstance had so great an influence upon the movement we are studying that it calls for a full statement of the facts concerning it. We have seen that English capital in the form of trading capital came freely to America in colonial times and after. To some extent also it came in other kinds of investment, at least after the revolution. Thus Hamilton noted in 1791 that several industries were owned largely by Englishmen; Pitkin estimated that $30,000 000 of our national debt was owned abroad in 1815; the United States bank reported in 1809 that three quarters of its stock of $10,000,000 was held by foreigners; and the commissioners appointed by New York to consider the practicability of a canal through the west said in their report of 1812, that notwithstanding the scarcity of money consequent on the wars which had so long raged in and ravaged Europe, a loan of $5,000,000 could be obtained there on the credit of the states. Obviously, even as early as this England was experiencing more or less difficulty in finding at home profitable investments for the great volume of savings which the inventions and improvements of the last part of the eighteenth century enabled her to accumulate. The pressure of surplus capital was, however, not left in its full force until the close of the wars in 1815. Up to that time the new savings had been absorbed by the growing manufactures, the agricultural improvements of the time, the expanding commerce, the increase of shipping, the building of canals and turnpikes, and, above all, by the expense of the wars.

There was no place in English industry where so much new capital could be employed. Commerce and the new manufactures continued to absorb a considerable amount

of it; but the difficulty in finding a new market for a rapidly increasing product placed a stubborn limit to their rate of expansion. Conditions were still more unfavorable in agriculture, where landlords and farmers were unable for many years, even with the assistance of corn laws to earn a fair profit on the capital already sunk in improvements. The canal system of the country was nearly complete. All the leading centers of industry were connected with each other and with the seaboard. Turnpike building progressed but slowly. Until the railroad should be introduced, the transportation system could absorb but little additional capital. Under these conditions the rate of interest must inevitably fall; and, to escape that fall, those who had savings to invest would be forced to turn to highly speculative investments at home or to lend their capital in foreign countries.

A number of circumstances recommended the United States to English investors. In the first place the rapid payment of the national debt and its final extinction in 1832 strengthened American public credit as hardly anything else could have done. No other country had ever paid off a national debt, and it was felt that there could be little risk in lending money to a people whose resources were so great and whose disposition so frugal. Moreover, the enterprises for which capital was required in America were favorably regarded by the English public. From the point of view of the investor, canals in England had been very satisfactory. Eighty companies, with a total capital of $150,000,000, reported in 1825 an average dividend of $5\frac{3}{4}$ per cent. Ten of these paid from 20 to 28 per cent dividends; and the stock of thirty three companies, representing one-third of the total mileage, was quoted at prices ranging from $1,000 to $1,500 per share, and a few as high as $3,000 and $4,000. American canals could hardly hope to prove as profitable as this; but they did not seem at all visionary enterprises, and the financial success of the early ones created great confidence in them. Towards the banking enterprises of the southwest English capitalists were equally well disposed. England was interested in securing a steady increase in the supply of raw cotton, and in making loans to the southwest for banking purposes

she was in reality investing her capital in the same great industry which was the basis of her manufacturing system. Moreover, banking in America had proven very profitable. Englishmen had invested heavily in the stock of the first and second United States bank, had received large dividends, and suffered no losses. More and more, therefore, her capitalists after 1815 turned to this country; and by 1830 they seemed ready to supply us with all the capital necessary to complete our system of canals and railways, as well as to assist in the development of our agriculture.

It is impossible to ascertain with accuracy the amount of English capital which found its way to this country during this period. Webster thought there might be $50,000,000 of state stock owned abroad in 1836. Two years later Mr. Garland submitted to the house of representatives a list of our stocks owned abroad which put the total at $110,000,000. President Van Buren in his message of 1840 placed the amount at $200,000,000, and the annual interest charged at not less than $12,000,000. A committee of the house of representatives a few years later estimated the amount of state securities purchased by foreigners at nearly $150,000,000. Besides this amount $28,000,000 of the stock of the United States bank and $9,000,000 of the stock of the Farmers' Loan and Trust company, the Camden & Amboy railroad, and the Commercial bank of Vicksburg, was owned abroad. Mr. Garland's estimate shows a further sum of about $19,000,000 of the stock of various corporations, chiefly banks, owned abroad. These estimates cannot be verified, but they show that the movement of foreign capital to this country for the purchase of our securities was large.

Not only did foreigners purchase a large amount of our securities, but foreign capital came to us also through the medium of commercial credit. We have seen that during the twenty years prior to 1815 Americans had come to own their own trading capital. In the later twenties, however, we again began to make use of foreign capital in our commerce. Before this it had been the practice for English merchants to execute orders for America, and transmit the invoices and bills of lading to their agents in America, who then delivered the goods

on receipt of payment. The wealth and financial standing of American houses increased to such an extent that they began to establish their own agents in the manufacturing districts of England and the continent for the purchase and shipment of goods to America. They were able also to obtain credit with the great Anglo-American houses in London or Liverpool, who would then allow the agents to draw upon them at four months to pay for the goods purchased and shipped to America. This arrangement was also introduced into other branches of our foreign trade, notably with India, China, and South America. American merchants were allowed to pay for their cargoes from those places by means of bills on London, which were allowed to run until met by the export of American produce. The system practically amounted to this: Englishmen bought nearly all of our products for cash, sold their own to us on credit, and in addition supplied us with letters of credit against which we could draw in all parts of the world. The effect of such an arrangement would obviously be to replace American capital engaged in foreign trade by English capital supplied by the great Anglo-American mercantile houses in London and Liverpool or by the numerous joint stock banks which eagerly discounted the paper of these houses. The American capital thus liberated from trade became available for carrying on the various improvements within the country. The amount of capital thus lent to us on commercial account may be estimated from the acceptances of these Anglo-American houses, which in 1836 were said to amount to $100,000,000. If we add this to the amount invested in our securities of various kinds, it is safe to say that nearly $300,000,000 of foreign capital was lent to this country between 1815 and 1840.

The American people were perfectly aware of the possibility of securing foreign capital at this time. New York from the first looked to this source to secure the funds necessary for her canals; Ohio did likewise; and Louisiana and the city of New Orleans, in the early twenties, were negotiating loans in London. The success of these first loans encouraged others; and after 1830 the whole country looked to England for capital to carry out its system of internal improvements, just

as Australia and Argentina have relied upon the same sources in later times. A large number of the public works were planned with this prospect clearly in view, and would not have been undertaken without it. Events proved that the works could not be carried on after foreign capital ceased to be lent freely to them. When the market for American securities in London failed towards the end of 1839, work on public improvements in most of the states was checked, and ceased altogether in several of the western states. The Wabash & Erie canal in Indiana and the Illinois & Michigan canal in Illinois were not completed until arrangement was made with English capitalists some years later to supply the funds.

Such was the situation regarding the demand for capital in this country, and the supply of it during the period we are investigating. We come now to the question how far private enterprise was able to deal with this situation. The means by which the large masses of capital required by modern industry are brought together, is the corporation; and we have next to examine the condition of corporations, and ascertain how far they were able to perform the services required of them. Private business corporations began to be created in this country soon after the revolution; and their rise was undoubtedly due to the growth of industries which required more capital than could be easily supplied by individuals or partnerships. The industry in which they first appeared, and in which for many years the most important ones were to be found, was banking. Congress chartered the bank of North America in 1781, and the next year Pennsylvania and New York each granted it a charter. By 1791 most of the states had chartered one or more banks, and the federal government the bank of the United States. Ten years later there were eighty eight state banks, and in 1830, 330. Insurance companies grew up about the same time, and became very numerous as the commerce of the country expanded after the outbreak of the European wars. There were twenty nine companies in the city of New York in 1830, nineteen in Boston, thirteen in Philadelphia, and six each in Baltimore and New Orleans. When the people turned their attention to improv-

ing the transportation facilities of the country, a large number of companies for that purpose were formed. Virginia chartered two canal companies in 1784, and several were chartered by Pennsylvania, New York, and Massachusetts by the end of the century; but canal companies were never numerous in any of the states, and, as already pointed out, in very few cases accomplished the purposes for which they were formed. Far more important and more numerous were the turnpike and bridge companies, the first of which was chartered by Pennsylvania in 1792, and which after 1800 were created in great numbers by all the states north of Maryland and to some extent by the southern states. By 1812 Pennsylvania had chartered 57, New York 112, Massachusetts 78, Maryland 8, Virginia 8. Pennsylvania also chartered twenty one bridge companies during the same period, and they were nearly as numerous in other states. In the same way, when the embargo turned the attention of the northern states to manufacturing, corporations for that purpose made their appearance, especially in New England and New York. Five or six such companies were chartered in Massachusetts before 1808, but 106 were chartered between that time and 1815; and in New York forty seven were chartered in the six years following 1809. Water companies also appeared about this time. Twenty six were chartered in New York before 1812, and twenty one from that time to 1829. Steamboat companies were also created in considerable numbers as the introduction of steamboats took place.

Thus by 1830 business corporations of various kinds were very numerous in this country, and the American people had already shown remarkable facility in forming them. De Tocqueville declared that the most democratic country on the face of the earth is that in which men have, in our time, carried to the highest perfection the art of pursuing in common the object of their common desires, and have applied this new science to the greatest number of purposes.

Nevertheless, a little consideration of the extent and character of the business operations of corporations at this time will show that they were not yet able to raise very large sums of capital, especially for such enterprises as were

then most prominent. Much the largest corporations were banks; and, with the exception of the United States bank, there was but one that had as large a capital as $2,900,000. Of the 330 state banks, only seven had as much as $2,000,000 capital, and only thirty as much as $1,000,000. Several of the largest of these were in the south, and were heavily subsidized by the states. Insurance companies were still smaller. New York had two with $1,000,000 capital, and New Orleans one; Philadelphia had one with $600,000; and in all the rest of the country there were only fifteen with a capital of half a million dollars. The great majority of both banks and insurance companies were small concerns with less than $100,000 capital. Two or three of the big textile manufacturing companies of New England had about a million capital in 1830; but, for the most part, manufacturing companies were even smaller than insurance companies. It would appear from these facts that no great difficulty was experienced in raising from half a million to one or two millions of capital for banks and insurance companies. But it should be noted that all the larger companies of this kind were organized in the commercial cities, where most of the loanable capital of the country was owned. The capital was supplied chiefly by the business men of the cities where they were organized. Except in the west and south, where state aid to banks was common, banking corporations did not have to attract capital from a distance or collect it from a great many small sources in different communities. Moreover, in neither of these industries was the capital actually sunk in a single industrial undertaking; it was in reality divided in loans among a great number of different industries, chiefly commercial, and for that reason involved much less risk than industries requiring large fixed capital. The conditions for the formation of corporations were, therefore, very favorable in these industries. To a great extent, conditions were also favorable to the formation of manufacturing companies. The amount of capital necessary to establish a manufacturing industry was not large, and could be easily supplied by a few men. The stock of manufacturing companies was usually owned by the men directly interested in the enterprise, and was rarely bought

and sold. It was not quoted on the Boston stock market before 1827, and in 1830 the stock of only six of the largest companies was dealt in there. In the case of turnpike and bridge companies it would seem that no great difficulty should have been experienced in raising the small amount of capital which they required. Nevertheless, one state at least, Pennsylvania, found it advisable to adopt the policy of subsidizing turnpike companies as early as 1806, and bridge companies in 1811. By 1822 that state had subscribed $1,861,000 to the stock of fifty six turnpike companies, and $382,000 to the stock of twelve bridge companies. South Carolina also expended about $2,000,000 of state funds on turnpikes and canals. We have already seen how few of the canal companies formed before 1815 succeeded in accomplishing very much. The Middlesex in Massachusetts and the Santee & Cooper in South Carolina were the only important ones not assisted by the states. They were comparatively small undertakings, requiring only a little over $500,000 each. The state of New York supplied most of the capital of the Western & Northern Inland Lock Navigation company, and Maryland and Virginia did the same for the Potomac and the James river companies. Companies that received no public assistance, like the Delaware & Chesapeake in Maryland and the Delaware & Schuylkill and Schuylkill & Susquehanna in Pennsylvania, were unable to accomplish anything worthy of notice. In the later twenties a number of canals were built by private companies, with little or no assistance from the states. The Blackstone and Farmington canals in New England, the Morris canal in New Jersey, and the Lehigh Navigation in Pennsylvania were constructed entirely with private funds. The Schuylkill Navigation and the Union canal companies received small subscriptions of stock from Pennsylvania; New York contributed $800,000 to the Delaware & Hudson canal; and the federal government, Pennsylvania, Maryland, and Delaware, $475,000 to the Delaware & Chesapeake canal, which was resumed in 1824. The largest of these were the Delaware & Hudson canal, which cost $2,300,000, and the Schuylkill Navigation, which cost $2,190,000. The Blackstone and

Farmington canals were estimated to cost about $500,000 each, and the others ranged from $1,000,000 to $1,500,000.

From these facts it is safe to conclude that corporations before 1830 were not able to raise any large amounts of capital without public assistance. This was not due to a lack of adequate supplies of capital, as we have seen. The difficulty related rather to the means of securing control of the existing supply,—of inducing its owners to invest it in the various enterprises of the day. The nature of that difficulty will be apparent if we consider for a moment the position and character of the persons who did the saving and supplied the capital for the community at that time. So far as domestic capital was concerned, there was no large class of persons, who on account of large incomes were willing to devote a part of their savings to risky investments or to those from which a return must be slow as well as uncertain. Such capital as existed was chiefly in the hands of small savers, who were naturally more interested in security than in the chance of large returns. There was no doubt a certain number of persons affected by the gambling spirit, as the prevalence of lotteries goes to show. There was also a considerable number of speculators pure and simple,—men who buy and sell, making or losing from the fluctuations of prices. But there were very few speculative investors,—men who devote a part of their savings to investments involving great risk and requiring long periods of time to yield a return. This latter type of persons is very numerous in this country at the present time; and, as a result, there is a great amount of savings constantly seeking new and uncertain investments. The existence of this speculative fund renders it certain that every project which offers even a remote chance of success, be it either the expansion of an old industry or the establishment of a new one, will receive a thorough trial. In the early part of the nineteenth century such persons were comparatively few. Consequently there was no such speculative fund, and no such assurance that promising industrial experiments would be tried. It is this difference which made the argument for protection to infant industries have so great force in the time of Hamilton and Clay, and gives it so little in our own time.

Regarding foreign capital the situation was somewhat different. There were many people in England ready to risk their capital in all sorts of uncertain undertakings rather than accept the inevitable fall in the rate of interest, as the wild speculations which preceded the crisis of 1825 abundantly proves; but, from the nature of the case, before modern means of communicating came into existence a foreigner could have but an imperfect knowledge of the character of the enterprise for which his capital was sought. He could not acquire the knowledge necessary to judge the merits of the project he was asked to support. Consequently, it was necessary, in order to secure his capital, to offer him a pledge of the faith and credit of some individual or combination of individuals who were able to command his confidence, as well as to present a promising enterprise. Accordingly, we find that English foreign investments in the early part of the nineteenth century were made chiefly in public securities. The stock and bonds of private corporations formed in foreign countries, unless indorsed by the government, played but a very small part on the London stock market until after the middle of the century. It was the public securities of the European countries, the Spanish-American republics, and the American states, which were chiefly purchased by the English capitalists. The only American corporation whose securities were well known in Europe before 1830 was the United States bank, and even ten years later only about a dozen American corporations had sold any of their securities there.

Such were the conditions regarding the demand for capital, the available supply of it, and the ability of corporations to secure control of large masses of it, during the first thirty years of the century. With these facts before us, the chief reason for making use of the powers of the state in industrial affairs, which was noted at the beginning, becomes clear. The opening of the west gave rise to an enormous increase in the demand for capital, chiefly to provide works of internal improvement. To construct any of the more important of these works required several millions of capital—an amount far greater than had been brought together in any industry in this country up to that time. For corporations to secure so much

capital it was necessary to bring together the many small savings of this country, and to attract the large ones of foreigners. There was no body of private individuals in the country well enough known and with sufficient influence in the business world to establish the credit of a corporation so that it could command the confidence of both these classes of investors. The only securities that could do this were public securities, or the securities of corporations which were guaranteed or assisted by the government. American public credit had been raised to the highest pitch by the debt paying policy of the federal government; and it was inevitable that the American people should turn to the only means in their power to provide for their needs. When New York demonstrated that it was easy to secure all the capital necessary for carrying out public works by the issue of bonds on the credit of the state, the way was open for other states to pursue the same course; and only New Jersey and the smaller New England states refused to enter upon it.

The crisis of 1839, and the subsequent embarrassment of the states, ruined public credit for a time, and put an end to the movement. In the older states of the north, like Massachusetts, New York, and Pennsylvania, it was never resumed, except in the case of the enlargement of the Erie canal and the building of the Hoosac tunnel. In the west and south, however, where capital was more difficult to secure, public assistance to railways was resumed in the later forties, and continued in some sections until comparatively recent times. In the west this assistance was granted in the shape of subsidies by counties, towns, and cities. In the south, however, the states also took part in it. Virginia, South Carolina, Tennessee, and Missouri created debts aggregating over $80,000,000 for this purpose between 1848 and the civil war. South Carolina, Georgia, and Louisiana were fairly started on the same course when the war broke out; and, after the war, under the reconstruction governments, all the southern states adopted the policy on a large scale. Local bodies were also active. Hardly a southern city of any importance failed to make grants of aid to railway lines in which they were especially interested. In Louisiana, Mississippi, and Kentucky

general acts were passed granting permission to the counties to issue bonds for this purpose. During the same time the federal government made large grants of land to the states, which were turned over to railway companies; and, in one case, the Union and Central Pacific railways, gave bond subsidies as well. Thus so long as corporations found difficulty in raising the capital required to build railway lines, the credit of the national, state, and local government was freely used to assist them.

The question naturally arises now whether this movement at the beginning was due entirely to the difficulty of securing sufficient capital by means of private enterprise. Was there no feeling on the part of the American people that the business of supplying transportation and banking facilities could not be safely intrusted to private enterprise? Was there no widespread public opposition to corporations as such? To answer that question, it is necessary to examine the discussions which preceded the various public enterprises as they appear in the messages of governors, the reports of legislative committees, and the congressional debates on internal improvements. Such ideas were not entirely absent from these discussions. Thus the New York canal commissioners in their first report on the Erie canal devoted a few remarks to the question of whether the canal should be built at public or private expense, and protested against a grant to private persons or companies:

Too great a national interest is at stake. It must not become the subject of a job or a fund for speculation. Among many other objections there is one insuperable,—that it would defeat the contemplated cheapness of transportation. It should always, on occasions of this sort, be recollected that the reasons adduced for grants to individuals in Europe apply inversely here. Few of our public citizens have more money than they want, and, of the many who want, few find facilities for obtaining it; but the public can readily, at a fair interest, command any reasonable sum. Moreover, such large expenditures can be more economically made under public authority than by the care and vigilance of any company.

The Ohio canal commissioners in 1825 reported in favor of state construction rather than grants to corporations, and gave the following reasons for their opinion:

Our jurisprudence, which borrows its principles and reasons from England, has vigorously adopted this doctrine of immortality of corporations, naturalized and established it as law in our free government, and stretched over its dogma the ægis of the constitution, so that now whatever is granted to a private corporation by the legislature is holden to be intangible and irrevocable. . . . Nothing can be more interesting to the whole community than the great navigable highways through the state from the lakes to the Ohio river on the routes proposed. It does not consist with the dignity, the interest, or the convenience of the state that a private company of citizens or foreigners (as may happen) should have the management and control of them. The evils of such management cannot be fully foreseen, and therefore cannot be fully provided against. . . . Besides, such works should be considered with a view to the greatest possible accommodation to our citizens; as a public work, the public convenience is the paramount object; and a private company will look only to the best means for increasing their profits. The public convenience will be regarded only as it is subservient to their emolument. We think, therefore, that it would be extremely hazardous and unwise to intrust private companies with making these canals which can be made by the state.

Such opinions as these indicate the existence of a certain amount of opposition, not only to the corporate control of important works of transportation, but also to corporations themselves. The popular opposition to the United States bank in Jackson's time was, no doubt, to some extent due to this hostile feeling, although it should be noted that many of the states, which denounced that institution as a monster corporation, did not hesitate to create state banks of several millions capital, and to give them a complete monopoly of the banking business within their territory. These views were, however, far from representing the prevailing attitude of the people. They appear but rarely in the public discussions, are nowhere discussed in detail, and do not appear to have had much

influence in determining legislation. The readiness with which the legislatures of all the states created corporations for all sorts of purposes, whenever they were called for by individuals, in many cases granting the privilege of limited liability, shows that the opposition to corporations as such was insignificant.

The considerations which received the principal attention, and which chiefly determined the policy pursued, were of an entirely different nature. They related to the utility to the community of the various improvements contemplated, and to the inability of private enterprise to secure the capital to construct them. Long arguments were presented to show that the benefits to be derived by the community at large from such improvements were sufficient to justify their construction at public expense, even though private capital should not find it profitable to undertake them.

Such reasoning as this may be found in the public documents of most of the states which adopted the policy of internal improvement. Sometimes it appears in the discussions which preceded the construction of the works, and sometimes it is used to justify that policy after experience had shown that the tolls were not sufficient to pay the interest on the public debt created to carry it out. The Ohio canal commissioners at the outset of their enterprise, after expressing their opinion that the construction of the canals would be a prudent investment of capital, declared that a more important and interesting inquiry is what are the advantages which the people of this state may derive by the construction of navigable canals.

After the canals had been finished, they laid still greater stress upon the fact that, in estimating their value to the state, the revenue accruing from tolls was a matter of secondary importance. By taking the amount of tonnage received and exported from either end of the canal in 1832, and estimating the rise in the price of exports and the fall in the price of imports, they reached the conclusion that the aggregate saving to the people had amounted to $312,000; whereas the taxes raised to pay interest on the canal amounted to only $143,000.

The attitude of the people toward the policy of internal improvements was not due to any modern socialistic or populistic idea that the business of supplying transportation and banking facilities to the community was not a safe and legitimate one, to be left to the management of private enterprise. As a matter of fact, only a part of the states undertook the actual construction and control of such works. This was the policy of New York, Pennsylvania, Ohio, and the northwestern states, excepting in the case of one or two canals and railways and all the turnpikes; but Massachusetts, Maryland, and the southern states generally pursued the policy of shortening corporations to carry out the works, and assisting these corporations by subscriptions to their stock or by loans of state credit. After the crisis of the early forties, all the states pursued this policy of assisting corporations. It required the experience of later years with the evils of unrestricted private railway management, the rise of labor difficulties, and the appearance of monopolies and trusts in many industries, to teach the American public that private enterprise might sometimes require to be restricted and controlled rather than stimulated, in the interest of public welfare. Down to the civil war, except in case of the banking industry, the powers of the government were used to encourage and assist private enterprise, not to restrict it.

It remains to add a few words further concerning the connection of the states with banking enterprises. It has already been pointed out that nearly all the states invested public funds, derived either from revenue or from the sale of state bonds, in the stock of banking corporations. The motive which caused this widespread connection of the states with banks was not, however, the same in all sections of the country. In the older states, both north and south, it was not primarily, if at all, due to a desire to encourage the growth of banking. Banks needed no such encouragement in those states. On the contrary, they were regarded as very profitable enterprises, and the investment of capital in them as a distinct privilege. In New York, at least, the struggle of individuals to secure charters from the legislature gave rise to political corruption. Many of the early charters contained

provisions for the investment of educational funds in bank stock. The early Connecticut charters provided that "the bank shall at all times be open for subscriptions at the rate of $100 for each share from the school fund of this state, and from the funds of any college, ecclesiastical society, school, or corporation for charitable purposes within the state." Several New York charters contained similar clauses. The act which rechartered the bank of New York in 1813 authorized the comptroller of the state to subscribe $15,000 to the stock of the bank for the benefit of the common schools; and the treasurers of Hamilton, Union, and Columbia colleges were given the right to subscribe a similar amount for the benefit of these institutions. Banking privileges were frequently given to companies formed for the purpose of carrying out canals and railways, as in case of the Morris Canal company, the Central Railway and Banking company of Georgia, and the Southwestern Railroad bank of South Carolina. Clearly, the banking business was looked upon as in some way exceptionally advantageous to the investor; and the devotion of the surplus public revenue to the purchase of bank stock was simply a device for increasing the revenue of the state.

In the newer states, where capital was more scarce, other motives played a considerable part. The people were anxious to furnish a circulating medium, and also to provide banking accommodations to the commercial classes as well as loans to farmers. But in all, except the cotton states of the gulf region, the desire to secure for the benefit of the public the large profits to be earned in the banking business was an important, if not the most important, motive which led the states to invest in these industries. Thus, when Indiana and Illinois began their system of internal improvements, they both increased the capital of certain banks, and authorized the states to subscribe for the new capital. In Illinois the act which authorized this action was entitled "an act to increase the capital stock of certain banks, and to provide means to pay the interest on a loan authorized by an act entitled 'an act to establish and maintain a general system of internal improvements.'" These states could borrow money at 5 or 6 per cent interest, and the banks earned from 7 to

9 per cent dividends. They found it profitable, therefore, to provide for the payment of a part of the interest on their internal improvement debts by selling bonds and investing the proceeds in bank stock. A similar motive influenced the action of Kentucky and Tennessee. The governor of Kentucky urged the legislature to subscribe for bank stock in order to provide funds for a system of public education; and the act which established the bank of Tennessee, in which the state invested $1,500,000, was entitled "an act to establish a state bank to raise a fund for internal improvements, and to aid in a system of education."

In the southwest the situation was different. The demand for capital here, and the difficulty of obtaining it, were, perhaps, greater than in any other part of the country. It is true there were no important works of internal improvements undertaken, except in Louisiana, where the state issued $1,200,000 worth of bonds to assist railroad companies. But the character of agriculture gave rise to a very great demand for capital. The plantation system carried on by slave labor is a highly capitalistic form of industry. Not only has labor to be employed on a large scale, but the planter has to purchase the labor outright, as well as to maintain it from year to year. This involves an enormous initial expense to the person who begins cotton or sugar culture with slave labor. As the planter's crop is marketed but once in the year, it is necessary for him to have large supplies of provisions on hand before these provisions can be paid for from the proceeds of his crop. The southern planter was therefore more like a man engaged in manufacturing or commercial business than like a northern farmer, and, like the manufacturer and merchant, required from time to time advances of capital to enable him to carry on his business. When it came to settling a new country with such a system of agriculture, the demand for capital became still greater. The hardy settler of the northwest could move into the wilderness with his family and gain a livelihood for them from the first, while he cleared his land and prepared it for cultivation; but the planter had to maintain his slaves while the land was being cleared and the first crop produced, which would require at

least a year and often more. The capital required to supply this demand not only did not exist in these new states, but it could be supplied to only a limited extent from older slave states, since slavery prevented that accumulation of capital which would have taken place in a free community possessing the same favorable economic conditions.

The planters of this region had therefore to attract capital from the north and from Europe; and for this purpose the credit of individual planters or of such corporations as could be formed in a new country was as inadequate as it was in northern states to secure funds for canals and railways. Nothing was left but to make use of public credit to supply this deficiency; and every new slave state in the south from Florida to Arkansas established one or more banks and supplied all or nearly all of their capital by a sale of state bonds. Many of the banks were known as "property banks," and were designed especially to furnish loans to planters. The business of all of them consisted in providing the capital for producing and marketing the cotton and sugar of this region. Thus in the southwest, where nature already provided an adequate system of transportation, the state banking enterprises formed the counterpart of the internal improvement movement of the north and east.

CONCENTRATION OF INDUSTRY IN THE UNITED STATES.

BY J. A. HOBSON.

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If by capitalism we understand industry involving large capital, owned or controlled by a few men and worked for private profit, there is a sense in which the United States must rank as the first capitalist nation in the world. It is not indeed the case that so large a proportion of her material wealth or of her industrial population is engaged in those manufacturing and transport industries which are distinctly capitalistic, as in Great Britain, Holland, and Belgium, or perhaps even Germany. Agriculture is still her most important single branch of industry; farm property still largely exceeds in value the aggregate of her manufacturing establishments, while 36 per cent of her occupied population are employed in agriculture as compared with 24½ per cent in manufacturing and mechanical pursuits. Even if we turn to the statistics of manufactures, the enormous growth of concentrated capitalism in America is not at first apparent, for the increase in the actual number of separate businesses in almost all industries is very large. It is indeed quite evident that small competing businesses occupy a very great part of the manufacturing field. A closer inspection of the situation, however, shows that, though the number of businesses is growing, the total capital engaged in the trade is growing far more rapidly.

This first proof of concentration is corroborated by many other evidences, which sustain the popular belief that a large proportion of the business in an increasing number of industries is passing into the control of a very small number of cor-

porations. The growing power, and even a large measure of real monopoly on the part of these corporations, is, of course, quite consistent with the maintenance of keen and cut throat competition over the greater part of the industrial field. Though a larger absolute number of industries are being subjected to the concentrative process, and are passing into the form popularly known as trusts, there is no a priori reason to suppose that there is a universal or even a general trend of industry in this direction. The facts and figures indeed point the other way; sound considerations of economy keep many trades and manufactures in small or moderate sizes, and prevent their merging. The former advance towards capitalistic control of agriculture in large bonanza farms has yielded to decentralizing forces; every important trust, by the very success of its economy of capital and labor, liberates large masses of industrial energy to apply themselves to new experimental industries for the supply of new wants. America exhibits a constant crop of these new enterprises, some of which eventually develop into trusts or are absorbed as subsidiary processes under trusts, but the great majority of them at any given time are small struggling businesses dependent upon individual enterprise.

But while the present and probable future scope of concentrated capitalism is exaggerated in the public mind, these trusts and corporations form a great power and a great peril in American life. They have thrived most in some of the great manufactures engaged in supplying common goods for the necessary consumption of the people, such as oil, sugar, thread or tobacco; or in controlling the produce markets in grain, meat, and dairy products; in the development of iron and coal, the prime necessaries of general industry; and in the great transport industries which mean so much more to the American than to the inhabitants of smaller and older countries with less need for transport and more facilities of roads. The really formidable aspect of trusts and potent organizations of capital is their prevalence in just those industries engaged in supplying common goods and services required by all, necessaries or prime conveniences of life. They are not, of course, confined to these industries; there are plenty of small

trusts in specialties or luxuries which thrive on a patent or a private reputation, or because they have organized a limited market. Chewing gum, playing cards, and certain sorts of biscuits and confectionery serve for modern instances in America. But the real issue of American capitalism is to be fought round the gigantic impersonalities of the great corporations in the staple manufactures, the railroads, the mining industry, and in finance. To clear the ground we may brush aside the legal technicalities connected with the term "trust." The fictitious corporation constituted by a number of business concerns entrusting their control to trustees, pooling their profits and distributing them in accordance with the value of trust certificates based on a previous valuation of the several concerns, was declared illegal in the case of the Standard Oil trust, and is no longer adopted as a method of monopoly by manufacturing firms; though a variant of this trust in the shape of a corporation formed to hold securities in other corporations has just been broken in the railroad world by the judgment of the United States District court in pronouncing illegal the Northern Securities corporation. What we are concerned with is not the form but the substance of the power of these corporations which have destroyed or abridged free competition in important industries. We first need to ascertain the origin and economic bases of this power wielded by the oil and sugar trusts, the steel corporation, the great transcontinental railroads, and the banking and insurance companies which are the financial replica of this gigantic power.

We must note the important part played by machinery in this growth of capitalism. The development of complex machinery in the substitution of mechanical for human power is indeed the essence of capitalism, for it involves the relative increase in the part played by capital as compared with labor. Now America has been conspicuous for carrying the application of labor saving machinery farther and faster than any other country. Absorbed until two generations ago chiefly in exploring and opening up the vast natural resources which a series of territorial accessions placed in their hands, and impeded later by the havoc and disorder of the civil war, America was late in betaking herself seriously to modern methods of

manufacture. But her advance was very rapid; the resourcefulness bred of an adventurous career manifested itself in remarkable mechanical inventiveness, and in quickness to seize and improve the best European inventions; no trade or individual traditions blinded their eyes, they had no old plant or machinery to consider, but began with the latest and the best; the high wages of manual labor were a stronger stimulus to substitute machines than any European nation felt; no federal restrictions and little effective state control were allowed to hamper the full economy of the machine and the factory system; the preternaturally rapid development of the railroad system by European capital opened up to them the vast and varied natural resources of their country. Employer and workman were subjected to a keener stimulus of gain than ever prevailed in England, even during the rise of Lancashire, and this stimulus was mainly directed to the improvement of machinery. Lastly, the tariff greatly facilitated the rise of the manufactures, and, by securing the American manufacturer against foreign competition, has proved specially efficacious in feeding infant industries into giants and enabling them to exercise a giant's tyranny. The size of the American market has commonly sufficed to support the fullest economies of large scale production with the best plant and the most complete division of labor, while the possession of almost complete security against outside competition has enabled a corporation, which has once secured supremacy in the domestic market, to save most of the expenses of competition, and to mature its plans for conquering foreign markets. The abnormally high profits which a tariff enables such a trust to earn in its domestic sales may certainly be used to enable it to undersell foreigners in their markets, the export trade being of the nature of bounty fed or by-products which it is profitable to sell for whatever price they will fetch. This phase of the trust economy deserves fuller discussion than I can here afford to give; but it is certainly the case that this power of "dumping" goods in foreign markets at below cost price is an important international implication of the trust.

These manufacturing trusts do not, however, stand alone; closely linked with them, both in industrial working and in

finance, are certain other forms of advanced capitalistic structure, commonly enjoying ampler and more secure monopoly, and supported more directly by privilege. The political development of America has left to private enterprise many of the most important industries which in civilized European states have come under the direct administration of the state or the municipality. Almost all the supply of ordinary municipal services, with the exception of water, still remains in the hands of private companies, and the rapid development of these services, especially those connected with electric traction, lighting, and telephones, has yielded huge elements of monopoly profit, which American cities are just beginning to learn how to tax, and which have formed useful feeders for great national manufacturing trusts, such as the Westinghouse Electric company. More important still are the railroad, telegraph and express companies, performing, as private monopolies for profit, most of those transport services which have in Europe and in our colonies been undertaken by the state.

The railroad system is the first of two distinctive features which mark America as the stronghold of unrestrained capitalism. It is not merely that it represents the largest and most complicated organization of private capital in the modern world. Still more important is the fact that this railroad system is the pillar of the whole fabric of capitalism, which is rightly regarded as monopolistic in character and anti-social in the economic and political power it wields.

The more closely I have reflected on American conditions the more strongly I am convinced that the railroad is the true center of gravity in the economic system of America. It is the railroad, more than the tariff, which in point of fact has been "the mother of trusts." This is sufficiently illustrated both from the early history of the Standard Oil company and of the Carnegie Steel company, which was the nucleus of the American Steel corporation; here, as in so many other instances, discrimination in railway rates and secret rebates have been the prime condition of early success. In such a country as America railroad transport has always been the most critical stage in that series of processes by which the raw material

must pass to the manufacturer, and from the manufacturer or wholesale merchant to the retailer and the consuming public. There may be other opportunities of cornering supplies, but the industrial stream most commonly is narrowed in the transport stage; if, then, effective competition can there be stopped, the profits of the producer can be sucked by paying low prices for his goods while the consumer is squeezed by high prices for his commodities, and these gains can be shared by the railroads with any industrial confederates with whom they are in league. The power of the railroad over the greater part of the republic to make or mar cities, industries, the welfare of entire states, has been too notorious to require discussion. The very self-sufficiency of America, the pride of her economic policy, has fed the railway power, increasing the part played by land transit, diminishing the part played by ocean carriage in her distribution of raw materials and commodities. So far as internal traffic is concerned, the Mississippi and, during a portion of the year, the northern chain of lakes, afford the only check upon the control of the railroads over the grain and meat traffic from the west and the middle states to the thickly peopled east, the distribution of manufactured goods from the northeastern states over the whole continent, and the carriage of coal and iron from the mines to the manufacturing centers. Corners in grain and in cattle can be formed or broken only by the active agency of the railroads, as is proved by recent cases in the courts. The anthracite coal mines of Pennsylvania are absolutely owned or fully controlled by the seven railroads which traverse the district, and which for this purpose are operated as a single system; the greater part of the soft coal mines are similarly held by other non-competing roads, and the silver and copper mines of Colorado, Nevada, Montana, are little more than annexes of the railroads. While, with the mining and manufacturing development of America, the railroads have assumed an absolutely more important part in the economic life of the nation, this power itself is rapidly concentrating into a few large units. So far as the most important traffic is concerned, that between the middle west and the eastern states, this tendency has gone so far already that three groups, fairly

stable in their composition, have been formed controlling nearly all the roads between Chicago and the coast, and from Chicago stretching out their tentacles through those great mining and agricultural states which are destined in the early future to become the center of industry and population in the United States.

This railroad concentration which is proceeding apace all over the continent is not merely an instinctive movement for self-protection and monopoly on the part of the railroad managers. It represents the first fruits of that domination of the financier over industry which is the second distinctive characteristic of American capitalism. Everywhere advancing, this active control of the financier over industry in general has proceeded further in America than elsewhere, partly because conditions are more favorable to bold speculative coups, partly because business life there has evolved and brought to the front a bolder and more imaginative type of financier.

The naive theory of capitalism provides no place for the financier, save as banker or insurance broker. Investors, as business men recognizing the uses of large capital, pool their capital for some purpose which they deem profitable, elect their directors, and delegate to them certain powers of control; the directors appoint the management, and exercise a general control over the conduct of the business subject to the supreme control of the body of shareholders. Such is the democratic theory of capitalism. In practice the formation and control of these great capitalist corporations is very different, and that difference mainly consists in the injection of the power of the financier into the system of modern capitalist industry. He performs two functions, both of them necessary in the existing order. The first is the formation and reformation of corporations and the merging of smaller into larger corporations. In his capacity of dealer in profitable "notions," he takes the initiative in the capitalist movement, directing the flow of industrial energy into profitable channels. Even when the idea emanates from an industrial specialist, a business man in the narrower sense, it can only fructify in the hands of the financier, who, as promoter, contractor, and underwriter, carries it from the world of ideas into the world of

reality. For this necessary work the financier takes his payment, sometimes a reasonable fee, sometimes an extravagant sum which cripples the future of his industry derived in part from the ignorance or over-confidence of shareholders, in part from consumers in anticipation of the monopoly prices which such a corporation hopes to impose by control of markets. This is the work of the financier in construction or reconstruction, where he has no genuine continuous interest in the working of the business.

His second function is as holder of and speculator in stocks and shares. Here his legitimate or social function is that of furnishing an intelligent registration of values, scaling them up and down in accordance with the play of actual forces in the industrial world. With this legitimate work is often associated an illegitimate, anti-social process, not so much of gambling (for pure gambling, or taking chances, does not rightly belong to the class of financiers who rule in America), as of the artificial manipulation of stocks and shares, bulling and bearing, in order to make profits from forced oscillations of values. These predatory practices appear to be playing an ever larger part in the formation of recent trusts; many of these are promoted less by the industrial economies of large production, or even the calculated profits of prospective monopoly, than by the design of creating a large quantity of marketable paper, which should serve the two purposes of enabling the financial promoters to sell inflated stock to ignorant investors, and of furnishing material wherewith to bull and bear the market, and by such manipulations to fleece minor gamblers.

At various eras in the world's history supreme power has passed into the hands of a little group of financiers, but never has that power been greater, more strongly rooted in actual control of industry, or more strongly concentrated in an able personnel, than in the America of to-day. Had I space, I ought to trace the origin of this financial control in the peculiar monetary history of the United States, and the combination of economic and political forces which have raised a few great banking and insurance houses to a pinnacle of power. The consolidation of the banking and insurance business has

already gone far towards the establishment of a single great monetary power outside and beyond the effective control of the government, but usurping some of the functions of the state. The most salient fact to-day in America is the financial control of the chief means of transport by land and sea, the mining industry, and the manufacturing trusts by several small groups of men, partly bankers who have entered industry, partly industrial magnates who have entered the wider world of finance. It is impossible to ascertain, or accurately to designate, the relations between these little groups of potentates—sometimes engaged in fighting one another in Wall street or in the courts for the control of a system of railways, sometimes united for a common swoop upon the products of small investors, sometimes in mixed relations of friendship or hostility over a corner in the produce markets. Industry in America no longer belongs to industrialists but to financiers. In the railroad world Morgan and Rockefeller and Havemeyer are in joint control with more distinctively railroad men like Hill and Harriman, and the forces are commonly described by the name of some great Wall street general. So important is the financial side of the great manufacturing businesses that their chiefs inevitably drift into the larger financial world, so that the owners of the standard oil, the steel, the sugar and other trusts are continually associated with fresh alien enterprises.

While the identification of the great financiers of Wall street with the control of the railroad system of America is the most fundamental fact, the growing prominence of transport and finance enables these groups to exercise a general control over great organized industry. Everywhere this consolidation of financial control is accompanied by a centralization of business management. It is not indeed strictly true that capital is passing into fewer hands, for in America as here the structure of the corporation lends itself to a multiplication of investors, and in some corporations a new labor policy is projected along this line. But while the number of capitalists, or investors, is increasing, the control and probably the ownership of the bulk of capital is passing into fewer hands. For the great financiers are becoming to a larger extent than

before permanent owners of large portions of the more profitable businesses which they finance. A great trustmaker, banker, or mine owner must find fields for the investment of his profits, and, as he has the best opportunity for discriminating genuinely progressive from merely speculative investments, he is disposed more and more to secure himself against misfortune by holding large shares in sound remunerative businesses.

In endeavoring to develop a public policy towards trusts and great corporations it will be important for Americans to make up their minds clearly about the economic supports of these capitalist structures, and in particular to test one point of economic theory. It is not difficult to ascertain that control of the best natural resources, railroad discrimination, and the tariff have been important aids in originating and supporting trusts. But are these the only supports? If so, tariff reform, enforcement of federal and state control of railroads, and some system of taxation of land values might suffice to defend the consumer, the would be independent producer, and the workers against any dangerous abuse of power. But if, in addition to these supports, the mere advantage of a big capital over a smaller capital, or, in other words, the operation of the law of increasing returns, is an economy sufficient in itself to breed a trust, a more drastic policy than any which America is yet prepared to face may be required.

Few American economists, and no American statesmen, have squarely faced the issue; those economists who have faced it, differ in judgment. The point at issue is precisely this. Every one admits that up to a certain point a business with a large capital has usually a net advantage in competing with a smaller business. It is evident that this is applicable to the case of the great capitalist businesses which ripen into trusts. But is there a limit to the economy of mere size, so that, this limit being reached, any further advantages of size are more than offset by waste, the business on the whole now conforming to a law of diminishing returns? If so, is this limit reached before the size of the business has enabled it to attain monopoly? Upon the answer to this question much depends. Professor Ely, often regarded as a socialist, holds

that land monopoly, railroad illegalities and tariff are the sole supports of the trusts, the advantages of mere size of business evaporating before the stage of monopoly is reached; Professor Jenks, on the other hand, regards the advantages of mere size as in themselves sufficient to support a trust. The issue is one of fact which cannot easily be resolved. For it is not possible, I think, to find a trust or strong corporation which has not enjoyed at least one of the artificial supports I have named. This does not prove that a trust could not grow without them, but it distinctly does cast the onus probandi upon the socialist as distinguished from the Henry George man, the free trader, and the railroad reformer.

I have used the words trust and monopoly for the sake of convenience. Monopoly is, of course, entirely a matter of degree. No American trust has a monopoly unqualified by some measure of real and direct competition, while potential competition furnishes a further genuine restraint upon the abuse of power over the consumer. Even the oil trust has small competitors over a portion of its home market, and one independent pipe line still exists, competing for export trade. But a growing degree of monopolist power attaches to the great corporations which I have described, and the surviving competition, real and potential, seems inadequate to secure the consuming public against rises of price unwarranted by the cost of production.

Perhaps Mr. Russell Sage goes too far in saying, "If the truth were known, concentration of wealth is popular with the masses;" but it is certainly true that the millionaire has been an object of admiration rather than of enmity among the masses. The sporting instinct in America has been specially directed towards the race for wealth, the racing regulations are not too particular, and the winner is greeted with general applause by the millions of spectators who are eagerly seeking for some chance of similar personal distinction. Great wealth and crooked methods of acquiring it have long been familiar, and do not disturb the popular complacency. Though the publicity given to the formation of "combines" during the last few years, and the appearance of trusts as an issue of party politics, are slowly educating the nation in the real significance

of the new capitalism, it cannot be said that any fixed general feeling of hostility against the power of the triangle of capitalist forces—railroads, finance, industrial trusts—exists in the general body of the people. A considerable insurrection against the dominion of local corporations handling municipal monopolies is everywhere on foot in the larger cities; spasmodic revolts against railroad monopolies or discrimination over wider areas occur, but no clear signs of a steady settled determination to break the power of the great national trusts are yet visible. There is indeed a sort of socialist party, broken into many groups, which takes as one of its mottoes, "Let the nation own the trusts." In the municipal and state elections of 1902 some 300,000 votes were cast throughout America for "socialist" candidates, and the rise of a numerically powerful party in the future must be regarded as a possibility. But for the present this definitely socialist sentiment and policy are not a serious factor in the situation. The feeling is rather one of growing disquietude and perplexity than of urgent alarm. There is a growing recognition among thinking persons of all classes that trusts have come to stay, that they are capable of using anti-social powers, and that it will be necessary to find public methods of restraining them. So far as any policy is developing in the general mind it is temperamental individualism of the American, and is directed towards a restoration of the competition which trusts seek to destroy, rather than at the socialization of industries from which competition is recognized to have disappeared.

If some sort of semblance of competition is retained, if good wages are paid and employees are fairly treated, if no considerable actual rise of prices oppresses the consumer, the general temper of Americans favors a policy of laissez faire. A trust may be a virtual monopoly, it may regulate production and control local markets, it may take for itself all the economies of improved methods of production, and of the elimination of expensive competition, distributing them in dividends on watered stock, but these things will arouse no effective sentiment of animosity in the public mind. The real danger arises when some great corporation opposes a large organization of labor, as in the Homestead and the Pullman

strikes; still more when a rise of price or a stoppage of supply of some necessary or convenience of life for ordinary citizens is attributed to the machinations of a combine or a trust. The rise in prices of bread, meat, and other foods during the last few years, popularly attributed to the action of trusts and rings, has probably done more to arouse a common feeling against combines than any other incident save one. The anthracite coal struggle of the winter of 1902 was a dramatic representation of the entire movement of capitalist control, so clear and full in its outlines as to furnish a national education in the economics of capitalism. Cheap foreign labor, illegally imported so as to depress domestic wages; illegal ownership of coal mines by railroads; absolute control of output and of prices by the carrying companies acting in secret but effective concert; long protracted defiance of public convenience and public opinion by the corporations, accompanied by a refusal to submit to arbitration, broken only by threats of coercion from the federal government—such was the picture presented to the eye in the highly colored press. The result was a curious revelation of that ground swell of revolutionary feeling which always lurks in the recesses of the easy going American nature. Spasmodic local riots were taking place, coal trucks were seized and emptied by the people, merchants suspected of holding back supplies were in danger of their lives, and state conventions were passing resolutions in favor of the nationalization of coal mines. President Roosevelt, interfering in the capacity of peacemaker, effected his end by threatening to march United States troops into the mining district, in order to take forcible possession of the mines, and to secure their operation.

It is not theoretical objections to trusts, nor any plain condemnation of their practices, but these uncalculated incidents that are likely to imperil the peaceful development of the great monopolist corporations. The knowledge of this growing suspicion of the trusts, and of the sudden outburst of popular passion which may at any time be directed against them, has rapidly forced the trust issue on to the stage of party politics. Neither party has any direct definite policy to offer. For the radical difficulty consists in the fact that the great majority

of the trusts are not directly amenable to federal legislation or administrative control. America is brought up suddenly against the essential inefficiency of her federal constitution. The British parliament is competent to pass any measures it deems necessary to control, to nationalize, or to destroy any trusts or combinations that might arise in our dominions; railroads, mines, manufactures are all amenable to its supreme control. Not so the government at Washington. The only great industry the regulation of which is clearly within its competency is the railroad, and even there its powers are limited by the Supreme court's interpretation of the passage in the constitution which gives power to congress "to regulate commerce among the several states." It is improbable that so drastic a step as the nationalization of railroads would be approved as constitutional by the Supreme court. As for the manufacturing, mining, and financial corporations, they are properly amenable only to the government of the state in which they are registered. In their actual economic structure and operations most of these "trusts" are federal businesses, but in their legal structure, they are state creations, and are only amenable to state control. In theory the concurrence of several states could doubtless establish a fairly substantial body of control, though even then their efforts might be reduced to naught by the absence of any machinery for common simultaneous administration. In point of fact such common action of states is impossible; states like New Jersey, Illinois, and West Virginia make a large part of their state revenue by enticing trusts to register in their limits upon conditions of loose legal regulation. Voluntary state co-operation is no practicable substitute for federal control.

THE INTEGRATION OF INDUSTRY IN THE UNITED STATES.

BY WILLIAM FRANKLIN WILLOUGHBY.

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The tendency toward what may be designated as the integration of industry is a tendency which, though it has been at work for some time, has only in very recent years become one of marked prominence. At the present time, however, it constitutes the fundamental force now at work for the reorganization of our industrial system. Through it alone can be established the significance of recent important happenings.

By integration of industry is meant the knitting together, so as to form one compact, harmonious whole, of all the related branches, or all the necessary processes, of any great department of industrial work. As such, it is evidently a movement quite distinct from that of concentration of industry. Concentration indicates the bringing together of likes under central management, as where all the coal mines or all the blast furnaces or rolling mills are brought under the control of one or a few parties. Integration indicates the bringing together of dissimilar, but interdependent, branches of an industry, so that complete harmony may be obtained among them, and the undertaking contain within itself a complete control of all the factors necessary for the successful and uninterrupted prosecution of its work. This is what takes place when the same management acquires control of such widely dissimilar, but essentially dependent, branches of industrial work as the mining of coal and ore, the operation of railways and steamships for its transportation, the extraction of lime, the working of coke ovens, the manufacture of pig, its conversion into billets, bars, sheets, and what not, and from them the manufacture of

wire, nails, rails, tin plate, structural material, or even bridges ready for final consumption. We have given as an illustration probably the most perfect example of integration that has yet taken place, and we shall have occasion to consider it more in detail in another place. The operation of this force, however, can be seen in almost every branch of industrial enterprise. Wherever a brewer decides to make his own barrels or to raise his own hops, wherever a bicycle manufacturer undertakes the manufacture of his own tubing or tires, this tendency may be seen at work.

A study of this movement, if it is to be at all adequate, should include the three points of: first, a description of the extent to which it has advanced and an account of its more important manifestations; second, an examination of the motives that are responsible for its rise and progress; and, third, an attempt to determine—as far as conditions will permit—its probable effect upon efficiency of production and the general welfare of society. Of recent examples of integration in this country, far the most important and striking is the iron and steel industry through the creation of the United States Steel corporation. In no other case can we find such a perfect working of the forces of integration. In other cases, integration has taken place almost unconsciously, and as the result rather than the object of the steps taken. Here we have an instance where the benefits of integration were clearly seen in advance, and an enormous combination brought about for their realization. No greater mistake could be committed than that made by most writers on this corporation, who have seen in it but a combination on a larger scale similar to those of its constituent companies. The latter, with the exception of the Carnegie company, were pure types of the concentration of industry. The former is a pure type of integration of industry. As the creation of this corporation represents in such a complete way this whole movement of integration, the motives or causes responsible for it, the conditions making it possible, and the probable results of its action, it is worth while to describe its rise with some degree of particularity.

Until 1895 or 1896 the development of the iron and steel industry in the United States may be said to have followed the normal course of most expanding trades. It was marked by the gradual concentration of work in fewer and larger establishments and a parallel geographical centralization in the more favored localities. While it was evident that a dominant position was being attained by certain establishments, this dominance was due almost entirely to the natural advantages that they enjoyed and the skill with which they were managed. Their growth, in a word, was one of natural expansion through the addition of new mills and the development of established lines of work. Only to a limited extent was increase in size obtained by the absorption of hitherto independent plants. There was little or no idea of one or a few establishments reaching such a strength as to be able to exercise monopolistic powers and fix prices without regard to active competition.

This was the condition of affairs up to the closing years of the last century. Suddenly a new means of building up huge concerns was adopted. The possible economies resulting from centralization of work in large plants and production upon a large scale had nearly been reached as regards the actual operations of manufacture. It was now seen that there lay a great field for economies outside the work of production proper, through a better control and organization of the factors of distribution. If a union of the forces of all or a considerable number of manufacturers of the same product could be secured, it would be possible to obtain raw materials at a more advantageous rate or with greater certainty, production could be made to correspond more nearly to demand, markets could be reached more directly, and new ones opened up where existing outlets were insufficient, transportation charges could be reduced, and, finally, if a sufficient control of output could be secured, a more positive influence could be exerted upon the fixing of the prices at which the commodities manufactured would be marketed.

It was the effort to realize these considerations that led to the second phase in the history of the organization of the iron and steel industry in this country. This phase is the one

marked by the formation of the great national companies, or so-called iron and steel trusts, through the merging of hitherto independent concerns. In rapid succession there were organized the Federal Steel company, the National Tube company, the American Steel and Wire company, the American Tin Plate company, the American Steel Hoop company, and the American Sheet Steel company, to mention only those which afterwards went into the United States Steel corporation, each with its forty, fifty, or hundred millions of capital. Now the characteristic of this period of transformation was that, in the formation of these huge concerns, the motive was the union of likes; that is, the bringing together under the same management of plants manufacturing the same products. It was as if a vessel of several classes of dissimilar particles had been suddenly agitated, and the members of each class had, on the instant, rushed together to form single independent homogeneous aggregations. There was thus constituted a great company for the manufacture of tin plate, another for the making of steel hoops and related articles, another for sheet steel, etc.

For a time it seemed, to the outside public at least, that this was the final step in the evolution through which the industry was passing, and that the immediate future would be devoted to the strengthening of the position obtained by each of the companies. But no sooner was this movement accomplished than new forces were seen to be at work. As field after field came under the central or unified form of organization, the companies in which this organization was vested came more and more into direct contact with, and dependence upon, each other. The finished product of the one was the raw material of the other. One company was the chief purchaser of the products of another, taking in cases a quarter, a half, or even a greater proportion of the entire output of the latter. One company was thus in a position powerfully to control the operations of the others. In numberless ways this dependence of one field upon another led to friction and difficulties whose seriousness was proportionate to the size of the companies concerned.

This condition of affairs could not last long, and signs soon began to be manifest that great plans were on foot for its correction. To do this, there were but two lines of action open. One was that each of the companies should seek to gain its independence of the others by the enlargement of the scope of its operations, so that it would itself mine or manufacture the materials used in its operations. The other was that the different companies could make some arrangement among themselves by which their interests would be harmonized.

Efforts were at first directed towards the first named method. One after another the different companies began to formulate plans for the erection of mills to manufacture products embraced within the field of operations of the other companies. It needs but a casual study of the situation of affairs to see where this policy, if adhered to, would have led. It meant a gigantic struggle between the companies. The company manufacturing sheet steel, for example, could not see with indifference the companies which took almost its entire product reach a position where they were no longer its customers. If they succeeded in doing this, the former company had but one alternative, if it was to remain in the business—that of itself building mills for the conversion of its products into articles ready for final consumption. The announcement by one company that it intended building mills for the production of articles which it had formerly purchased from a second company was consequently immediately followed by announcements of the second company that it would retaliate by entering the field of the first, and erect mills for the conversion of its products for which it could no longer secure purchasers on an adequate scale. These were no idle threats. It is well known that definite plans for such action were, in many cases, formulated, and the preliminary operations for their execution begun. The tremendous danger to all parties, if this movement had been allowed to continue, was quickly seen. Efforts were, therefore, turned to the second method of bringing about harmony—that of uniting the interests of the companies in some way. The powerful firm of J. P. Morgan & Co. was appealed to. The result was the

formation of the United States Steel corporation, with its billion, one hundred million, dollar capitalization.

With the formation of this corporation the evolution in the organization of the iron and steel industry entered upon its third, and as yet final, phase. It constitutes, if the expression may be permitted, combination carried to its second power, being, as it were, a combination of combinations. That in character it is essentially different from previous combinations, which had in view merely the concentration of industries for the purpose of controlling production and prices, is manifest in the view of the conditions leading to its foundation. The motives that were at work were purely those for bringing about an integration of related interests. It must be remembered that the companies which were united were not essentially competing concerns, as regards the disposition of their products. Had the motive been primarily one to lessen competition, the union would have taken place along different lines. The insistence that Mr. Schwab lays upon this point, in his testimony before the industrial commission, must be taken as a sincere expression of opinion, and not one dictated by business policy.

Mr. Schwab, moreover, has brought out this point with great clearness. "The iron industry," he says, "was kept back in this country for many years, because there was no connection between the various industries on which it depended. The ore deposits were owned by one set of men. The coal deposits were owned by another set. The coke was made in a hundred different places, scattered throughout several states, under different management. The mills and furnaces, in turn, were owned separately; and, when these mills and furnaces, having bought their iron here and their coke there and their other products elsewhere, finally produced their iron and steel, there were still other processes that the product had to go through before it could be finally landed in the market. Everything was disconnected and disjointed. It was not until the whole process was welded into a continuous chain under one management that the American iron industry began to make its giant strides which have now carried it into a position where it dominates the whole world."

If there was any doubt in this matter, one has but to follow the subsequent policy of this corporation to have a verification of the position that has been taken. The new corporation has spared no expense or effort to acquire certain properties, such, for example, as ore deposits and facilities for lake transportation, which were essential for the complete rounding out of the scheme of controlling all of the factors entering into the production of finished articles from the raw materials. It is strictly in line with the same policy that the American Bridge company and the Shelby Tube works were acquired, as through them the products of its other departments can be directly marketed as finished products.

On the other hand, the corporation has looked with perfect equanimity upon the building up of other strong properties in fields in which it already had a sufficient number of mills, such as is seen in the combination of steel properties under the control of the Pennsylvania railroad, the Colorado Iron and Fuel company, the Republic Iron and Steel company, and scores of others that might be mentioned. Were the crushing out of competition in view, these would be the properties that would have been sought.

In our account of the formation of this corporation we have spoken as if it were a union of concerns, each having its special field of operations. To this, however, there was one important exception. The Carnegie company occupied a unique position in the iron and steel trade in the United States. It was, in the first place, much the most important concern in the trade. Roughly speaking, it made from 25 to 30 per cent of the finished iron and steel product in the country. It mined all the ore that it used, or over four million tons annually, and owned a large percentage of what is known as the old range ores. It did not sell any ore to outside parties, believing it to be the better policy to preserve it for its own use. It transported a large percentage of it in its own boats over the lakes, and carried a large percentage of it on its own railroad to its Pittsburg works, where it manufactured a greater variety of steel articles than almost any other manufacturing concern. It made almost everything pertaining to the iron and steel trade. In structural materials of all descrip-

tions it made 50 per cent, in rails 30 per cent, and in armor 50 per cent of the production of the country.

It was in the theory or principle of its organization, however, that the Carnegie company was unique. With an insight into the requirements of a scientific organization of the iron and steel industry that amounted to genius, Mr. Carnegie had twenty-five years before his competitors begun the organization of his undertaking upon the principle of the accurate integration of all the branches of the industry under a unified control. He was thus working out in theory and practice a plan of organization which the great steel corporation was to adopt in toto. Mr. Schwab, the president of the company, gave an exceedingly interesting account, in his testimony before the industrial commission, of the development of the Carnegie company and its policy. He said in part:

"The original Carnegie Steel company was a partnership. When it went into the mining of ores, it formed a separate organization for that purpose, and so with almost every other branch of its business. Its shipping industry on the lakes (the Bessemer Steamship company) was a separate organization; the railroad (the Bessemer & Lake Erie railroad, running from Conneaut harbor to the works in Pittsburg, about one hundred and fifty six miles) was a separate organization; its coke interest, limestone interest, all those various companies numbering some twenty six or twenty seven, were all separate organizations. But the controlling interest of each was held by the Carnegie people. In fact, Mr. Carnegie himself retained a controlling interest in all, owning something over 50 per cent in each of the companies.

It was then found that this partnership had grown so large and the business was of such a varied character, there were so many companies to control and so many partnerships holding varied interests, that for the sake of harmony among our partners it was decided to put all in the control of one corporation, to be known as the Carnegie company. One of the chief reasons for that was Mr. Carnegie's idea that a partner in the coke interest, for example, should not have a greater interest in coke than he had in steel, as it might affect the contracts between the two companies; or that a partner should

not have a greater interest in shipping than in the steel company. So he put these interests all into one company, so that each partner's interest was as a whole."

Something of a diversion has been made in order to give this account of the Carnegie company, because it constitutes such an important step in the evolution of the iron and steel industry in this country, because it affords an unusually definite presentation of the reasons dictating the consolidation of allied interests into a single corporation, and because it undoubtedly pointed the way and furnished the model for its great successor, the United States Steel corporation.

Returning now to a consideration of this latter combination, it is, of course, too early to attempt a forecast of what its ultimate influence will be upon the industry and upon the public welfare. If our position in the matter, however, is correct, there seems to be no reason to apprehend anything like an effective monopoly of the trade being organized by the corporation. Practically, all of the testimony before the industrial commission, including that given by independent operators, was against any such idea. There are now, as we have seen, a large number of plants outside of the corporation; and the building of new mills seems, if anything, to have been stimulated by the events of recent years. It is, of course, quite possible, if other iron and steel companies pursue the same policy of building up self-contained organizations, as indeed a number of them are already doing, that the time will come when the competition between them and the steel corporation will be a serious matter. When that time arrives, the old tendency of combination to restrict competition will again become dominant.

The formation of the United States Steel corporation is by no means an isolated example of integration on an extensive scale in this country. In the transportation industry can be found evidences of the working of the force of integration in a great variety of ways. Several of them have been mentioned in the preceding paragraph. Of others, the most important is that whereby a close community of interests is being established between railroad and ocean transportation. The purchase of the Leyland line by J. P. Morgan & Co. was for the

purpose of permitting a closer relationship between the business of the railways bringing freight to the seaboard and its subsequent carriage to foreign parts. Another example in which this purpose of bringing together related interests rather than concentration in a distinct field is peculiarly manifested may be found in the control recently obtained by the Standard Oil company of the American Linseed Oil company. The Standard was already in control, through its directors, of the National Lead company. There were thus brought under the same general management, or at least under sufficient control to insure that they would work in harmony with each other, the concern having the larger proportion of the output of linseed oil in the United States, and the company controlling the greater part of the production of white lead, or the product in which linseed oil finds its chief employment. There are also strong indications that the Union Lead and Oil company and other concerns will also be taken in, and all run in relation to each other.

Still another example of the bringing together under one management of all the different branches of a trade, which has taken place during the past year, is the merging of the American Tobacco company, which had the largest production of cigarettes in the country, the Continental Tobacco company, the leading manufacturers of chewing and smoking tobacco, the American Snuff company, the most important of the snuff concerns, the American Cigar company, the International Cigar Machine company, and the Havana American company in a single corporation, the Consolidated Tobacco company. The magnitude of this combination may be seen from the fact that the capitalization of the companies taken was over two hundred million dollars. It will scarcely be necessary to multiply examples further. If a careful analysis of all the recent important considerations be made, it will be seen that in almost all cases the essential purpose in view has been the merging of related interests rather than the taking over of distinctly competitive concerns.

Of integration in the distributive branch of industry, the chief example is, of course, that of the familiar department store. Here, however, the real forces of integration are not

present to the same extent that they are in the other examples that we have mentioned. The gathering together in the same establishment of the numerous branches representing as many branches of trade is not the result of any integral relation of independence between the different departments. Their union is rather to obtain the advantages resulting from centralization of management, and of ministering to the convenience of customers by making it possible for them to find many of the articles they desire under one roof. The scale on which these stores are conducted, however, makes it possible for them to establish closer and more immediate relations with producers, and thus bring about a real integration. Many of the stores maintain not only extensive repair and custom making departments, but to a considerable extent engage in the direct manufacture of articles handled by them. Where this is not done, the stores often enter into such close relations with manufacturers that the arrangement is almost one of partnership. The jobber and other middlemen are eliminated to a considerable extent.

Another example of the integration of industry, though it has not yet reached a position of great importance, is that of the union of the work of production and distribution in the same hands, as is seen in the practice, now quite common, of manufacturers of shoes, such as the Douglas, the Regal, the Crawford, and other companies, to open retail stores of their own in the chief cities of the country for the disposal of their products. In Great Britain the Mansfield Shoe company has carried this system to a high development. Not only has the company one or more stores in each of the chief cities of Great Britain, but its stores are found in many of the cities of the continent.

This tendency which we are considering can also be seen in fields in which its occurrence would not at first be anticipated. The rise within recent years of the great trust and security companies is an example of pure integration. Here we have one big corporation performing a great variety of functions, which were formerly distributed among as many institutions. It is not unusual for the same company thus to act as a bank, as the administrator of estates, as real estate agent, as guardian of valuables, as bonding agency, as conveyancer of properties. Either itself, or through companies acting in

close relations with it, it also examines titles, places insurance, and performs other duties of fiduciary or legal character.

Turning now to a consideration of what will probably be the effects, good and bad, of this movement, we shall have to limit ourselves to a very general examination. The movement is as yet too young to permit of any accurate forecasting of the ultimate results as regards the details of our industrial system. It is scarcely necessary, however, to comment upon its possible overwhelming significance. There are definite limits to the progress of concentration, and these seem to have been reached in a number of cases. There are practically none to that of integration. It has already given us a billion dollar corporation, although its influence as a definite force has only recently begun to be distinctly felt.

In the future progress of this movement there is one industry in which it would seem that the conditions are peculiarly favorable for its operation. This is the great industry of railway transportation. The peculiarity of this industry is that it is at once dependent upon all the other industries for its successful exploitation, and all the other industries are in a like manner dependent upon it. We have given above one or two instances where this interdependence has led to integration. These cases, however, are insignificant in comparison with what might take place. The railroads, to an extent equalled by almost no other undertaking, are enormous purchasers of certain articles, such as rails, cars, structural material, and other supplies. These articles, moreover, are ones for which a steady and certain demand exists year after year. The time may very easily come when the roads will abandon the policy of depending upon outside concerns for the supply of the materials and equipment of which they have need, and undertake, as is now done in isolated cases, their direct manufacture. With their lines reaching all the mines or other sources of supplies of which they have need, and with the possession of certain markets for what is produced in their own needs or the ability effectually to distribute any surplus, the roads are in a peculiarly favorable situation for the manufacture of a large number of products. If their charters will not permit this to be done directly, the same result can be

accomplished through closely affiliated companies, as is now done by the Pennsylvania company through the Conemaugh Steel company.

The question may legitimately be asked why, in view of these circumstances, if integration is such a strong force, the roads have not already entered these fields; why, as regards their most immediate needs, such as cars, direct manufacture has not been more resorted to. The explanation lies in the fact that the evolution of the railway systems in this country has not yet advanced far enough to make this desirable. During the past as well as at the present time the great problem confronting the railroads is the building up of systems through which effective control can be obtained of particular territories or lines of traffic. So overwhelming in importance is this consideration that all other considerations have for the time to be left in abeyance. In the contest for supremacy the greatest arm is the possession of capital with which other railroad property needed for the rounding out of the systems can be acquired. It is thus the height of folly for any considerable sum of capital to be devoted to other purposes, unless an absolute necessity for such expenditure exists.

The time is now rapidly approaching, however, when these systems will be comparatively perfected, and the greater part of the country be divided up among a few great systems of railroads. When this is accomplished, a radical change may be looked for in the policy governing railroad administration. Energies will then be turned exclusively to the efficient equipment and operation of the properties. The different lines of the systems must be reconstructed, so that they may be welded into one harmonious whole. The matter of securing supplies and equipments at the best possible rate will receive the most careful attention, and the time will then have been reached when the desirability of the roads themselves manufacturing the articles of which they have need will be considered purely as a problem in the cost of production and control over a necessary element in the operation of their properties.

To what extent the railroads will ever become manufacturers on a large scale it is now impossible to predict. That they will do much more than they are now doing would, how-

ever, seem extremely probable. Should, moreover, the time ever come when there will be an integration of industries, as well as an integration of related branches of an industry, the railroads of the country would furnish the connecting links binding the different departments together.

It would be a hardy prophet who would seek to follow out all the consequences of the continued operation of this tendency. Especially would it be futile to attempt to weigh the social effects that would result from the concentration of such enormous power in the hands of a few individuals. Of one result, however, we may speak with comparative certainty. Each step in the direction of integration implies a lessening of possible friction and a substitution of a direct for a more indirect method, and both of these mean greater economy and increased efficiency of production. With this will also come an enormous strengthening of control over the factors of industrial operations. That the greater control resulting from the concentration of industry would have as one of its most important consequences the steadying of production and the resulting lessening of industrial depressions, so it is believed that the far greater control that will follow from integration cannot but work in the same direction. Here, however, we are treading upon more uncertain ground. The causes of industrial depressions are too complicated and too little understood to permit of confident statement.

In conclusion, it is of not a little interest to note how perfectly this tendency towards integration fits in with the theory of evolution as applied to industrial progress. Evolution as a method of progress, stated in the simplest terms, may be said to be the differentiation of functions and the concomitant integration of parts. With the rise of the modern industrial system began that differentiation of function which is known as division of labor. Particular duties or operations were assigned to particular units. In the beginning this was the most important feature of the changes that were taking place. With this diffusion of duties largely accomplished, there now rises, as the factor of prime importance, the second element of evolution, that of integration, by which the various interdependent parts are being knitted together into a more harmonious whole.

THE GREAT CONSOLIDATIONS CALLED "TRUSTS."

BY PETER S. GROSSCUP.

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It is the fashion, nowadays, to point to our place as a people, industrially and politically, among the nations of the earth; to take a just pride in the leadership acquired; and to exploit the belief that it is not only secure now, but will remain secure for a long time to come. We are told that our manufactures go to every land; that our harvesters are to be seen in the grain fields of Asia Minor; our locomotives drawing trains in Russia; our machinery bringing out gold from the mines of South Africa; our bridges spanning the rivers at Khartoum; and the sultan of Turkey preparing to defend his sovereignty by battleships built in American shipyards. All this, it is said, is still on the rising tide, so that when the flood is reached, the United States will have become the richest and most powerful people on the face of the earth. Her political power and influence, we are told, have kept equal pace. She is present, physically and politically, not only throughout North America, but at the outposts of the western hemisphere in the Caribbean sea and at the outposts of the far east in the islands of the Pacific. Her views are consulted by the cabinets of Europe and her armies aid in keeping the peace of the world.

Gratifying as this outward spectacle is, it should by that very token lead us to inquire, how goes the life within? During these same years, one third or more of the industries of the United States have passed from the ownership of individuals or local corporations into the great bodies of property known as the trusts. Should the process go on until all our industries

are thus consolidated, as many well informed men now think probable, the so-called trusts will have absorbed nearly one sixth of all the wealth, of all kinds, in the United States. Nothing in history, outside the rise of the feudal system, has left so striking a change in what may be called the personnel of ownership. As a mere right to hold and control, ownership remains, of course, unchanged, but if the process of the last few years goes on unchanged the universality of ownership that characterized our past—an ownership of our industries widely spread among the people—will be all but lost.

Accurate statistics show that the former owners of the industries now consolidated have put their money, or the bulk of it, in the banks; the workman declines to invest his surplus wages; and with them, also standing aloof, is the ordinary man, possessing ordinary means. It is certain that, as never before in our history, there are several millions of men and women brought up in the industrial trades who are now without proprietary interest in the trades they follow. No less a man than Webster said that the freest of governments will not long be acceptable if the tendency of the laws be to create a rapid accumulation of property in a few hands, rendering the majority of the population dependent. If this be truth, it has come about that the same years that brought us riches and greatness as a nation have brought with them an internal disorder, which, if allowed to go on, will endanger the stability of the government itself.

The men and women who, two generations ago, came over the Alleghanies into the Ohio and Mississippi valleys; the children of these, who, abiding with their fathers until wild nature had been tamed, faced wild nature again on the trans-Missouri plains; our earliest forefathers, who threw themselves on the ocean to be cast up in the wilderness; the men and women, who every year have braved something, to gain something they might call their own; these, and these alone, are the true types on which our institutions thus far have found secure foundation. It was not civil and religious liberty alone these fathers sought. The spirit of adventure does not, alone, account for the courage of their children. They sought, one and all, opportunity as well; the independ-

ence of individual ownership; the fulfilment of an instinct, born with the beginnings of property itself, and without which property would not have been. This instinct it is that has kindled, at all times, the genius of the inventor; that makes strong the arm of the laborer; that brings companionship into the field with the farmer; that sets before us a prize, nerving our resolution to its attainment; and that, turning us aside from frivolous lives, makes us useful helpers in the progress of mankind. Along with love of liberty, and reverence for the rights of man, this innate desire to acquire and possess constitutes a cornerstone in the fabric of our civil government —is, indeed, the spirit and soul of our civil institutions. And what shall it profit our country if it gain the whole world and lose its soul?

I do not expect the soul to be lost; I do not expect the tendency toward consolidation—a natural economic law—to cease; but I do expect that the present consolidations, and those that come after them, will either cease to exist or will be put on such firm ground, in matters of obedience to law, fairness in organization, honesty of management and permanence of reasonable success, that the average man and woman, who by birth or inclination seeks a place in industrial life, may safely become part owners in their securities, and in that way co-sharers in the advancing prosperity of the land. This, in my judgment, states the core of this whole vexed subject of the so-called industrial trusts.

But before proceeding to state the salient facts and reasons upon which my judgment is based, I wish, if possible, to arrive at a common understanding of what we mean by the word "trusts" and what are more or less fanciful objections to their existence. I exclude from the purpose of this discussion the railroads of the country. They may or may not be trusts; it is enough that they are commonly in mind when we think of the so-called industrial trust. Besides, the considerations that should control our judgment in their case are so different, in many respects, from those relating to the industrial trusts, that an attempt to discuss both, indiscriminately, would bring confusion. I exclude also the large private enterprises such as department stores. The attitude of the general

public toward these, though interesting, is fundamentally different from its attitude toward the so-called trusts. Large private enterprise is the legitimate fruit of the freedom of the individual—a freedom as ancient as society—a freedom that the public, even when most over heated, has never yet seriously challenged. The so-called trusts are, on the other hand, the offspring of our own times, created under corporation statutes framed by our own legislatures, and dependent for their existence upon the continued existence of the corporate power thus given. Nor do I seek, on this occasion, a definition applicable to trusts that would be accepted in a court of law; nor one that would meet the mind of industrial experts. My sole purpose is to meet and discuss the subject, not as it lies in the mind of the specially informed, but as it lies in the mind of the public at large.

When I was a boy in Ohio, we baked our bread on our own hearth or got it from the town baker; the flour came from the town mill; our shoes were made by our neighbor, the shoemaker; from a loom turned by the town creek came the cloth that covered our backs; a nail mill in an adjoining town supplied us with nails and other metal implements. We were without radiators; but our stoves were made in the next county; our houses were built by the town carpenter, of lumber sawed in the town mill; on every hand was the hammering, the hum, and the bustle of the individual artisan. The community might have existed as an inaccessible island; it was so well equipped to take care of itself. Of course, beyond the circle where the earth and sky met, was the great world; but it was an almost unknown world.

The years crept away, and with them went the shops with the familiar signs. The shoemaker took down his wooden boot; our shoes came from Massachusetts. The nail mill turned a ruin; nails were now made in some far away shop in Pennsylvania. Our wheat flour came from Minnesota; stoves gave place to radiators bearing foreign names; the saddler disappeared; the bricklayer disappeared; the man who supplied our wants was no longer the man we bowed to as our neighbor. The horizon had lifted, and out into the mist slipped our old world, and in came the great world. All this was a step in the

march of industrial development. Its results seem to you not abnormal, for you were born into the world as things now are. But in its elimination of the individual from the mechanical trades; in its change of the whole face of town and country life, in its so-called factory questions, it kindled anxieties that unsettled the confidence of your fathers, as much as our later anxieties have unsettled yours.

The change of which I have just spoken did not bring in the trusts, but it was the beginning of the so-called trust. It created the conditions and furnished the constituents on which the trust was subsequently builded. The process we called consolidation is a continuation only of the processes that set in when our neighbor the shoemaker took down his sign and closed up his shop.

One day there entered the industrial world a new kind of craftsman. Looking about, he saw that the needs of mankind were supplied from mills and factories, great and small, scattered over the land. He measured the wastes of their rivalry and the economies possible under single management. He then did a thing, simple enough in conception, though difficult to execute—he proceeded, without changing them in any other respect, to join these mills and factories, or the greater of them, into single ownerships. Not a factory was removed or demolished, not a fire put out nor a sign changed. But the new joinery, though invisible to the eye, was as effective for the purpose in mind as if all the scattered mills had been torn down and then rebuilt on a single site under a single sign. The conception thus set on foot presented itself to the financial world in the form of stocks, preferred and common; the former theoretically covering the present value of the property, the latter the expected increase of value to be brought about by the craftsman's joinery. The old owners stepped out, except as they retained some portion of the stock of the consolidated companies. The new ownership was financed by syndicates and banks. And thus set in the development that is rapidly taking away from the people at large the ownership of the properties we call the industries of the country.

Other craftsmen came. Other workshops, great and small, without an outward sign of change, surrendered their individuality for a place in one of the great industrial families. The secret was out, the fashion set, the noise of the new carpentery was heard in the land, and the day of the so-called trusts had opened. This was nothing less than industrial revolution, not only in semblance, but in deeper significance. Revolution always excites concern. Where—the inquiry pressed home—where will this all end? Have we come to this, that the few will be masters and the many servants? Where will I be left? Am I to be oppressed—to find still harder conditions added to those already borne as the price of livelihood? Where will it leave the artisan, the merchant, the small manufacturer, my neighbors generally? Is industrial liberty for them gone? Are they henceforth—they and their children—sentenced to hard service with no hope of eventual emancipation?

The answer to these questions was the act of congress of July 2, 1890, commonly known as the Sherman anti-trust law. As interpreted by the supreme court, that act embodied a public purpose, unwisely formed, I think, to deal with the so-called trusts on no basis other than that of extermination—to cut them out root and branch—to sweep the lands with a decree like Herod's, that no child of consolidation should be found to have escaped. We are now well into the fifteenth year since the passage of the Sherman act. In its means of enforcement, as well as in its purpose, the act was as comprehensive as language could make it. It withheld no power, civil or criminal, that the lawmakers thought would contribute to the complete eradication of the supposed evil. It had been preceded, in Texas, Kansas, Michigan and Maine, by state laws directed to the same end, and was quickly followed by like laws in one half the other states, including New York, Ohio, Indiana, Illinois, Wisconsin, Iowa and the west generally. Thus, so far as enactments make law, the law, both national and state, has for a period three times longer than it took to put down the rebellion, been in battle line against the so-called trusts.

Have these organizations been extinguished? Has the trust idea abated? Let me answer by calling but a partial roll of those organized since the Sherman law went into effect. There is the American Window Glass company, created in 1895, five years after the Sherman act. There, too, is the Continental Tobacco company, 1898; the Tin Plate company, 1898; the Amalgamated Copper company, 1899; the American Radiator, 1899; the National Salt, 1899; the International Plate Glass, 1900; the International Salt, 1901; the Consolidated Tobacco, 1901; the United States Steel, 1901; the Corn Products, 1901, and many others that come readily to mind. An inspection made for me of a list of 112 of the leading so-called trusts in the United States shows that all but thirteen have been created since the passage of the Sherman act. May we not, confronted by such a spectacle, pause to inquire if this method of dealing with the so-called trusts—this policy of extermination or nothing—is, after all, on solid ground? Can a development so persistent be entirely unnatural? Can we by law of congress successfully repeal what appears to be a fixed law of industrial economy? Is this instinct of the time, properly safeguarded, really in conflict with the public welfare?

It is urged sometimes that the consolidation idea, when fully attained, will make harder the conditions of ordinary life. Is that true? If true, the indictment should stand. But I can only judge the future by the past; and, seeking some specific analogy, I know nothing in the past so nearly analogous as the beginnings and growth of the railroad systems of the country. Railroads began as small local enterprises. In the start they were the steam highways between neighboring towns and cities, resembling in that respect the present interurban trolley systems. For example, what constitutes now the trunk line of the New York Central, from New York to Buffalo, was, originally, seven or eight independent lines; one between New York and Albany; another from Albany to Schenectady; another from Schenectady to Utica; another from Utica to Syracuse; another from Syracuse to Canandaigua; another from Canandaigua to Rochester; and still another from Rochester to Buffalo. The time was when their

consolidation was thought both impracticable and unwise. Laws were passed to forbid it. Public opinion was against it. But one day, under a hailstorm of public anathema, a hand reached out and, gathering up the local roads, joined them in a single road reaching from the sea to the lakes. Then the idea took root elsewhere. One by one the roads were consolidated, the shortest lines becoming the trunks and the adjacent lines the branches; until, as they exist now, a single railroad carries us from Chicago to New York, another from Chicago to New Orleans, others from Chicago to every point on the Pacific Coast; and at rates, both for passengers and freight, less than are charged by any railroads in the world. Who of this generation would now go back to the railroads of our fathers? Who, except the irresponsible agitator, stops to question even the private fortunes picked up in the process of consolidation? Who, indeed, looks upon the railroad system, thus consolidated, as other than the normal state of such affairs—the necessary and beneficial outcome of railroad evolution?

This is a specific instance, but, wherever we turn, in the survey of development under economic law, it will be found that mankind has always been helped. There are men now living who were alive when the Duke of Wellington was the first citizen of the world. They have lived through the individual changes, many of them bitterly opposed, out of which have come the present day conveniences of life—conveniences that in the matter of substantial comfort give to the well paid American workman more than the Duke himself possessed. The Duke had finer mahogany and better plate; but the breakfast table of the American has fruits and cereals, meats and coffees, that all the ships of England could not have gathered for her great soldier. The Duke had robes and sashes such as the American perhaps has never seen, but in the quality that gives comfort the Sunday suit of the American surpasses any clothes the Duke put on. The Duke had all England to choose from in the selection of his dwelling. He built it in a public park—a park free alike to the eyes and feet of the commonest Englishman—a park not surpassing in beauty those of a hundred cities in America; not the equal

of the natural landscapes that by rail or street cars are open every hour of every day to him who has eyes to see and a heart to enjoy. We are all heirs, in almost equal portions too, not only to what God has given, but to what the genius of mankind can add.

It is sometimes urged that the growth of the so-called trusts shows a tendency to lessen wages. On the contrary a paper prepared by Professor Jenks, and issued by the department of labor in July, 1900, shows that wages in general had in 1900 reached and in some cases passed the former high level of 1892, and that the wages paid by the so-called trusts were not exceeded by those paid by the large private manufacturing corporations. I think it can be fairly added, from a study of the tables furnished, that the wages paid by the so-called trusts are, in fact, larger than those paid by private enterprises. Since 1900, wages have been still further advanced, while the hours of toil have been lessened.

Perhaps the chief objection urged is, that the consolidation idea increases the cost of living. The cost of living has unquestionably increased; and it is but natural to put the blame on the most likely culprit in sight. But let us look again at the facts. I go to the bulletin of the department of labor for March, 1902, to find a comparison of prices between 1901 and the average preceding ten years. In clothes there was an average increase of but two tenths of 1 per cent, in foods of 5 per cent; in metals and ordinary implements 10 per cent; in house furnishing goods 10 per cent; and in the other ordinary commodities about the same proportion. But let the increases be what they may, the question is not, have prices advanced; but, have they advanced to figures that individual manufacturers would not, under the law of supply and demand, have exacted? My own belief is, that under the increased consumption always attendant upon the coming on of good times, prices would have gone up fully as much, and perhaps more, under the old system of individual manufacturers. Indeed, in one of the largest of our industries, as well informed men know, prices have been kept down, by a so-called trust, as a matter of business policy. The motive, of course, was to discourage the coming in of competitors, as

well as to equalize consumption, but the effect is, none the less, smaller prices to the public than individual manufacturers would have exacted. But, take the argument at its worst, and assume that certain trusts have put up prices. What then? Should all the so-called trusts be exterminated because here and there one has offended? Should the wheat be destroyed with the tare? Why not—here as elsewhere—apply to the offender, and to him alone, the correctives of the law? I see no obstacle, myself, in the way of effective legislation, or of effective execution of the common law, that will adequately protect the public against prices that are artificial—prices made possible, either by a cornering of the supply, or by conspiracies in restraint of competition.

We often hear, as an objection, that the capital of the so-called trusts is large; that such concentration of capital, in one control, unsettles our conception of what a single individual may own; that, as in the case of one of the so-called trusts, its fiscal transactions measure, in volume and importance, with the fiscal transactions of the government itself. To my mind, this is largely an inherited bugbear, brought over from the days of smaller things. We live in an age of large things. If we wish to go back to the day of small things, we must be prepared to put up with the inconveniences and limitations of those days. In the nature of things, great enterprises must be under a few controlling minds; and, I may ask, who so worthy of power—here or elsewhere—as the man who, by sheer buoyancy of talent, has come to the top? By what safer guide could the controlling hand of a great industry be selected? Whom, for instance, could the 27,000 men employed in the establishment of the late Philip Armour have found so well equipped by experience and genius to direct their establishment? What would have been the outcome, had the owner of that establishment turned it over to his employees, to be their own in equal parts, and managed thereafter as an industrial democracy? Set apart to some work for mankind, we all are; and though some rise to an ownership and responsibilities that appear vast, they are in the last analysis trusteeships only—trusts that can not be resigned unless the power that goes with them is also relinquished. But

though the objections reviewed be untenable, it does not follow that the so-called trusts, as they now exist, are without menace to our welfare. Indeed, the real danger, as I have already indicated, lies deeper than any consideration of prices charged, or distrust aroused. It goes to the foundations of our society as a republican people. Unless, by timely and courageous measures we undo the danger, the danger will, in my judgment, go far toward undoing us, and our present institutions.

When the baker sold out his business to the Biscuit company, he invested little, if any, of the purchase money in the Biscuit company's securities. He did not purchase another bakery. Having deposited the larger portion of his capital in some bank where it drew a small but steady interest, he remained, in most instances, an employee of the purchaser. So with the tanner, who sold to the Leather company; the cigar maker, who sold to the Tobacco company; the sugar manufacturer, who sold to the Sugar company; the whole scattered legion of individuals, whose holdings have been swallowed up by the great concerns. A table prepared by the United States bureau of statistics shows the deposits in the banks—national, state and savings banks—by the people of the United States to be now in excess of $8,500,000,000. This is the sum of money that the people of the United States, including those who were the former individual owners of our industries, deem it better to loan, than to invest. It is equal, almost, to one dollar in nine of the whole remaining wealth of the United States. It exceeds, by $1,000,000,000, according to a recently prepared table, the combined par value of the principal stocks listed on the New York stock exchange, including railroads, street railways, express companies, gas and electric light companies, telegraph and telephone companies and the so-called trusts. It is nothing short of amazing that a property loving people like ours could have so much money left over, after having made all desired investments. But the significance of the fact is not yet fully stated. Twenty years ago the moneys thus deposited were a little in excess of $2,000,000,000. By the growth of population and of wealth, there would, of course, be a corresponding normal

increase in the people's bank deposits; but neither wealth nor population has grown at anything like the pace taken by the deposits. In the ten years following 1880—a period during which wealth and population had increased possibly 25 per cent—the deposits had doubled. In the ten years following, they have doubled again; three quarters of the accretion—or more than $3,250,000,000—being added since 1897.

These figures show, of course, that as a people, we have been prosperous—that the farmer, the merchant, the workman, have as never before, had out of their earnings a livelihood and a large sum over. But this does not explain it all, or nearly all. The men of this day are not less keen than those of yesterday to make good bargains, to increase their possessions, to share in the advancing prosperity of the land. They know, too, as well as did their fathers, that it is not from idle capital, but from invested capital, that any increases must be looked for. They stand aloof, it is plain to me, not from lack of wish, but from lack of desirable opportunity. It means, if it go on, that the people at large will cease to be proprietors in the industries of the land, and in thus ceasing, exchange the active interest of proprietorship for the idle curiosity of the bystander.

A widespread withdrawal by the people at large from general ownership in the properties of the country, cannot but be fraught with the gravest dangers. A few of these are so obvious that I need only indicate them. Such withdrawal will diminish, if not destroy, popular interest in national prosperity; for, from those only who have a stake in prosperity, can we expect great interest. It will kill off competition; for the competitor of the trusts must itself be a trust, and there will be no independent field from which to recruit the means to create such competitor. It will discourage still further the wage earner in any hope of becoming part owner; and thus deepen and widen the existing gulf between wealth and labor. It will sap to its foundation the real strength of government; for government must be built on the interests, as well as the affections, of the people governed. An industrial system subject to such indictment is a rising menace to free government itself.

The remedy, in general terms, it is not difficult to state. The first thing to do is to abandon the present policy of outlawry and extermination. That policy has failed. It has failed through conditions that cannot be removed by law. Replace the old policy by a new, under which industrial corporations subjected to restraint against artificial prices, will be made, in organization and management, to invite, and worthily invite, the confidence and copartnership of all the people of the country. To suggest concrete legislation is perhaps more difficult. It should include the repeal of the Sherman act. Logically and impartially enforced, that act forbids two grocers, on opposite corners of the street, from forming a copartnership to save expenses; partially enforced, it puts the industries of the land at the mercy, not of the law, but of the officers of the law. The legislation that replaces it should provide against artificial prices, brought about either by a cornering of the supply, or by conspiracy; and also against discrimination in prices as to either buyers or places, except as affected by actual transportation rates. There should be a provision for open books; for stated examinations by some department of the government and for periodical statements to the public, as in the case of national banks and many of the railroad companies.

The new legislation should forbid the issue of primary stock in excess of the cash paid in, or the real value of property contributed, to make up the company's assets. Some department of the government should be charged—as between the company and the public—with the duty to see that this limitation was enforced. Provision should, of course, be made for further issues of stock as the value of the property increases; but such issue as is based not on subsequently acquired property, but upon increased value due to management and operation, should be secondary, always, to the first, and should be put out only after judgment, by the appropriate department, that it was justified by the earnings and standing of the company. To the extent that such subsequent issues represent increased value, due to management and operation, I would encourage, by every feasible method, its division in fair proportions between those who have furnished the capital

and those who have done the work. I would embody the basis of such division in the contract of incorporation, so that it would operate as a contract right, and not as a mere bonus. Experience has shown that there is no way to so satisfactorily mitigate the struggle between capital and labor, and none so just as a fair division of the harvest after both the reapers—capital and labor—have each had their reasonable hire.

A programme such as this is not, in my judgment, either radical or impracticable. It will be opposed, however, by those who look upon corporations of any kind as a menace to public liberty and by those who look upon restraint of corporations of any kind as an invasion of industrial liberty. It will be opposed by the men who are temperamentally apprehensive, by the men who believe the present good times to be due to present conditions and deplore interference, and by the men who still wait their opportunity to get rich out of present methods of trust organization. It will be opposed by those who have given to the subject no study, by those who are incapable of giving it a candid study, and by those who thrive in practicing frauds on public opinion. It will fail until public opinion is reached and educated. But public opinion will, in the end, be reached and educated. It will be made to see that a country is not made great by becoming rich; that a government is not secure whose sole policy is to realize large dividends to capital and a large wage to laborers and to keep the peace between them; that there must be found firmer depths than these for the foundations of permanent security. We will then begin, in reality, to rebuild the industrial edifice—a new edifice made necessary by the change of time—but on the old foundations. We will anchor it, where our fathers anchored theirs, in a general proprietorship, so widely spread among the people and thus securely buttressed against hate and envy, that time and change will thereafter dash in vain against the security of the state.

THE COMBINATION OF LABOR, INTELLIGENCE AND MONEY.

BY CHARLES R. FLINT.

[Charles R. Flint, merchant; born Thomaston, Me., Jan. 24, 1850; graduated Polytechnic institute of Brooklyn, 1868; became engaged in the South American trade, and in 1878 organized the Export Lumber company, and in 1881 the Crude Rubber company; has represented the United States at various international conferences dealing with trade and commerce; organized in 1892 the United States Rubber company which controls that industry, and in 1899 the United States Rubber company, American Chicle company, American Caramel company, National Starch company, and several other industrial combinations, and also several steamship lines; director in several banks and a score of industrial companies. The following article appeared originally in Cassier's Magazine and is published by special arrangement:]

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A combination of labor is a trades union; a combination of intelligence, a university; a combination of money, a bank; an industrial combination is a combination of labor, intelligence, and money. There seems to be much confusion in the minds of the people as to the difference between a trust and an industrial company, due to the fact that those who talk most about them are not yet well informed, either as to their organization or operation. A trust was a syndicate of men who held stock certificates of several corporations and issued trust certificates therefor. Now, industrial interests are represented by shares of stock in regularly organized companies. Although strenuous efforts were made to develop the trust system, it was found to be imperfect. It was adopted when industrial combinations were in their infancy. They were not required to have any by-laws or keep any official minutes of their proceedings, or to make any official reports. The Supreme court of New York declared them illegal, and that decision has been accepted as final throughout the United States. But the word "trust" has since been applied to great industrial corporations, and as the word represents all that is best in human character, I see no reason why the word "trust" should not be adopted as a short name for industrial combinations; and may every officer and wage earner in every "trust" realize that the shares of stock are

widely distributed among widows, orphans and others dependent on its dividends for support, and live up to the true meaning of the word.

In studying the evolution of industrial life, we find that combination is coincident with civilization. Savages have little power to combine, because combination depends on trust in our fellowman, and in primitive life it is fear that rules. One of the first steps in industrial evolution was to subdivide production into trades. Each did what he could do best, settling accounts by an exchange of products. Later, those engaged in the same trade formed partnerships, then corporations, and finally consolidations of corporations. Against this march of industrial progress there has always been opposition. There have always been those who, appealing to special interests, to the unsuccessful, the discontented, and the misinformed, have endeavored to obtain political favor by opposing progress, by endeavoring to prevent the natural, and mutually beneficial, co-operation between capital and labor. Centralized manufacture permits the highest development of special machinery and processes. The factory running full time, on large volume, reduces the percentage of overhead charges. Direct sales on a large scale minimize the cost of distribution. Centralization of manufacture and distribution reduce aggregate stocks, and therefore save shop wear, storage, insurance, and interest. Consolidated management results in fixing the standards of quality, the best standards being adopted; in avoiding waste and financial embarrassment through overproduction; in less loss by bad debts through comparisons of credit, and in securing the advantages of comparative accounting and comparative administration. Industrial evolution, which is as inevitable and as unalterable as the law of gravitation, has attained its, as yet, highest development in the United States. Every unprejudiced man must recognize its advantages, and that it is because of them that that country is taking so important a position in the world's markets, increasing its national wealth, furthering its welfare, and increasing the prosperity of its people.

The great problems of the economics of production have been solved. What interests us most to-day is the question whether the advantages of the prosperity secured are equitably divided among the contributors to it:—(1) capital; (2) superintendence; and (3) labor.

1. The share to capital takes the form either of interest or dividends. Now, we find that the rate of interest paid to those furnishing money to industrial enterprises is decreasing. Fifty years ago the average rate throughout the United States was 8 per cent per annum. Now it is less than 5 per cent. This general rule can be laid down, that the greater the confidence, the higher and more perfect the industrial organization, the lower the rate of interest. During the year 1896 the stability of American currency and the fundamental conditions of American industrial development were regarded by many with doubt; and money loaned as high as 20 per cent. The investor is ever willing to take lower interest in exchange for greater security and for a steadier and less precarious demand for his funds,—and so that form of industrial organization which furthers careful financing, opens wider markets, and guarantees greater confidence and stability, is directly in the interest of capital, although the rate of return on capital is thereby steadily reduced. The dividends received by shareholders are larger than the interest rates, because the risk is greater, and, moreover, being partners and shareholders, they are entitled to a larger share in the advantages of combination. Still, it is doubtful if the aggregate of dividends is as large as the aggregate of interest. Moreover, dividends are never absolutely certain, and they are never paid until labor and superintendence have first had their share.

2. Now, what is the position of the man of superior intelligence; for superintendence stands midway between capital and labor? Highly developed organizations, resulting in enormous volume of business, have increased the necessity for intelligence, and as the supply of brains is not equal to the demand, the price of brains is high. The turning over of individual businesses to combinations has caused the retirement of old men to the advisory board for judgment and has made way for young men for action. You ask, "What chances

have our young men?" While you are asking the question, those of ability and energy have already started on a career of successful industry. If the student will leave his books and the orator the stump and go to our factories, to our great farms, to our mines, to our lines of railway, they will find ten times as many men receiving over $3,000 per annum as there were thirty years ago. Mr. Schwab, of Pittsburg, is a type. He started as a stake driver of an engineering corps; though under forty years of age, he rose to be president of the largest iron company in the world, and I can point out a hundred successful men to-day where you could not have named ten under old conditions. But it is said, they are dependent. Dependence upon one another is, however, a condition of civilization. The very word civilization implies community life, and community life means mutual dependence. Complete independence is found only in the wigwam of the Indian. There the young man builds his own home, makes his own clothes, gets his own meat, and keeps his bank account, if he has any, in his pocket. The best opportunity he has for distinction is in showing superior prowess in hunting, or superior strength in paddling his own canoe. In civilized life, interdependence is more profitable than independence. But let us not spend more time in considering who will take care of these young men of superior intelligence; they will take care of themselves.

3. Let us now consider the interests of the workingman in this economic evolution which has produced the perfect machinery and giant factories, supported by great aggregates of capital represented by shares which enable all to become investors. It is a fundamental fact that the man of superior ability cannot accumulate for himself without giving to the wage earners an opportunity to earn the larger share, and it is always an increasing share. The tendency is to-day to a minimum of profits and to a maximum of wages. When profits become abnormal, they invite competition, and are immediately reduced; in that case, the consumer solely is benefited. If they are not sufficiently abnormal to invite competition, then labor demands a larger share of the profit in the form of increased wages, and it is either voluntarily or necessarily

agreed to, in which case the body of wage earners reaps the advantage. And, inasmuch as the body of wage earners is the great body of the community, it necessarily reaps the advantage in any case. Employees know almost as promptly as do the employers whether a mill is earning an extravagant profit. If it be, they at once demand their share, and the employer must, and inevitably does, succumb. It is thus that wages always tend to a maximum, and profits to a minimum.

The maintenance of the high standard of wages now paid in the United States is absolutely dependent upon our realizing the advantages which come through superior organization. We are to-day shipping manufactured goods to countries where the rates of wages average 40 per cent less than our wage earners are receiving. Of our exports of manufactured goods, 80 per cent are produced by large industrial corporations. Articles of manufacture which we do not produce through consolidations are being almost entirely supplied to the neutral markets by the cheap labor countries,—Germany, Belgium, and Great Britain. The centralization of manufacture and consequent use of special machinery have emancipated the slave,—have raised the American workman to the position of overseer, not of pauper labor, but of its productive equivalent, machinery. And he is receiving, and is entitled to, the wages of superintendence.

Now, the intelligent labor leaders understand this perfectly. It was my pleasure to entertain at my home some of the best known of these. Speaking of labor conditions, I asked one of them to define the difference between his organization and that of the professional agitators. He replied: "We hope to bring about by evolution what they claim should be accomplished by revolution." They said that they "welcomed new machinery, because it did the work which had heretofore degraded labor."

The wage earners of the United States are to-day enjoying a higher standard of living and a larger measure of well being than wage earners have ever enjoyed in the history of the world. They are the real money power. The railroad managers have rails and rolling stock; the miner has mines; the manufacturer has bricks, mortar, and machinery, and

most of them have debts, and many are mortgaged to the banks for savings; but the wage earners in the United States have on deposit in cash in the savings banks, subject to call, $3,060,178,611. Thus through co-operation and combination every interest is being benefited, but labor most of all. As wage earners become more intelligent, as they become overseers of machinery, they better understand these conditions. They have the intelligence to recognize that their greatest comfort and happiness is in furthering the industry of which they are a part. To-day one of the great advantages that the United States has over Europe is that its laborers are the more intelligent, are the healthier and happier. The European wage earner, instead of welcoming labor saving machinery, as workingmen in the United States have done, has tried persistently to retard its general use, and the result has been that wages have been lower in Europe. The American workman has received more because he has produced more, and this is the great reason why, notwithstanding our high wages, we are so rapidly extending our trade with foreign markets. The best factory inevitably gets the most work. There is a continued struggle for existence between good factories and poor factories, and the good factory invariably wins.

The law of consolidation of capital and division of labor holds as good in the field of distribution as in that of production. It is inevitable, and it is profitable. The department stores and the mail order stores sell for 10 per cent instead of 30 per cent profit, and the consumer thus saves 20 per cent. The profit obtained by the distributer of staples, on the way from the farmer to the consumer, is less than one quarter what it was thirty years ago. The farmer secures a wider market, the consumer gets his staples just so much more cheaply, and the enterprising middleman avails himself of improved banking and transportation facilities to do a larger business. This is why he has adopted as his motto, "Quick sales and small profits." The real benefits of "capitalistic production," as compared with production on a small scale, are twofold. The first and greatest benefit of industrial combinations goes to the whole body of the community as consumers, through reduction in prices. The next benefit,

and that next most largely distributed, goes to the workers through increase of wages, and thus it happens that the workingman gains simultaneously in two ways. He gets more money for his work and more goods for his money.

Having reviewed the position of our great consolidated corporations as the result of an economic evolution, something should be said with regard to their capitalization. In general there has been much greater conservatism in the capitalization of industrials than there was in the original capitalization of railroads. Our railroads were built principally for the amount of the bond issues, and the stock represented the capitalized hopes of the projectors. The issues of industrial bonds have been considerably below the actual value of the tangible assets, and industrial stock issues have generally been based on actual earning capacity. Still it is undoubted that there has been more than one instance of marked over-capitalization of industrials, and no proper legislative measure to remedy this wrong or prevent its recurrence should be neglected. Fortunately, the evil caused by careless investing and unwise capitalization tends to correct itself by natural laws. Investors, confused by the few inflated industrials which were put out simultaneously with the sound ones, are afraid to buy, and the organizers, unable to sell their securities, now realize that sound capitalization is the best policy.

In organizing industrial companies, preferred stock, which is intended for an investment security, should not be issued in excess of tangible assets, except in special cases, where there is a very large earning capacity, protected by very valuable patents or trade marks. Verified earnings and regular dividends will establish confidence, and the prices of the shares in the well organized and well managed industrials will advance, as did the stocks of railroad companies which were originally issued for good will. In reviewing the evolution of industrial combinations I have taken a general and comprehensive view. In this evolution, as in all human affairs, there are imperfections and abuses for which it is our duty to find remedies. The man of narrow view to whom the imperfections are pointed out loses sight of the great benefits. He

sees a dead tree in the landscape instead of looking all around the horizon. While believing in great organizations; while knowing that they are a necessity in order that this country should become a great power in the economic world and thereby continue the prosperity of the wage earners of the land, I do not believe in large aggregations of wealth in the hands of individuals unfitted to wisely administer them. Wealth is a serious trust, and when left to those who lack experience in the use of it, is often a curse instead of a blessing. Money does us good only as we part with it, and there could be no great gifts without great fortunes. After providing a reasonable competency for the family, in my opinion the greatest satisfaction that can be obtained with money is to build up educational institutions, to facilitate aspiring young men to help themselves. Fortunately, under corporate ownership this can be done without liquidating or contracting great business organizations whose influence is so far-reaching that they may properly be called great business universities, and in justice to the wage earners and managers who have assisted in building them up, and to the investors who are dependent on their dividends for support, such organizations should be sustained and improved.

One of the features of our industrial situation is that many of the men who have built up these great organizations are retiring. Those men who have blazed the way in this new and rapidly developing country have been the ablest industrial leaders the world has ever known; such men as Carnegie and Huntington, Rockefeller and Field, Armour and Vanderbilt,—the thinkers, the doers, the organizers,—men whose creations are the great landmarks in American industrial history. It is fortunate that we have had such leaders. They did their work with the aggressive force that comes of natural energy and temperate living, and with the judgment that comes of experience. They have understood and have been in sympathy with the people because they have been of the people, and the example of those men, rising from the ranks, gives impulse, encouragement, and high aspirations to every working man in the land. They made their fortunes by reducing the percentage of profits and in-

creasing the volume of business; by reducing the rate of freight on a barrel of flour to the Atlantic from $3.00 to 45 cents; by reducing the price of steel from $100 per ton to $20; by improving the quality and reducing the price of provisions and of by-products, while paying a higher price to the farmer for the animal; by reducing the price of oil from 30 cents to 10 cents; by reducing the price of cotton cloth from 20 cents to 5 cents. They realized that in order to make their combinations a grand success, they must increase consumption by reducing prices. Thus they not only helped to develop a great home trade, but enabled us to open the door of foreign markets, which has resulted in the enormous trade balance in our favor, on which American prosperity so largely depends.

The industrials to-day are owned by the many. While economic evolution is centralizing production in large corporations, decentralization of ownership goes on simultaneously through the rapid distribution of shares. There are many hundred times more partners in manufacture, mining, and railways than there were thirty years ago, and the number is rapidly increasing. Women rarely had an opportunity of obtaining an interest in business organizations, but now they are large shareholders of corporations, and as such they have the full right of suffrage. Under the old conditions of private ownership, the control of many of our industrial enterprises would have been inherited by one individual or family. Now the control is subject to the rule of the majority. It is seldom, and fortunately so, as preventing great aggregations of wealth in the hands of individuals or families, that the heirs of the industrial giants have the capacity to succeed to the direction of gigantic enterprises. Many inheritors of great fortunes, enervated by ease and luxury, prefer a life of indolence, or to chase the will-o'-the-wisps of society; others prefer to devote their time to literature or art; others to enter upon scientific pursuits. Under the old conditions they would have inherited the control of industries, but under the present conditions of industrial consolidations the majority of the stockholders—for, generally speaking, the numerical majority is also the majority in interest—elect as officers aspiring young men who, through years of application to a

particular industry, have proved their ability and judgment to assume the responsibilities of leadership, and owing to the higher evolution of our industrial organizations, these men are developing greater intelligence and superior ability to those who have preceded them. Thus the fittest survive.

In life nothing is stationary; contraction or expansion goes on continuously, and if you do not expand, you contract. It is so with nations, and it is so with industry. There are periods of expansion when the mills are running full, and there are periods of contraction when the number of unemployed is large. Confidence is at the foundation of expanding business activity. The amount of business transacted on credit is over two thousand times that transacted in exchange for gold or silver. If there is confidence, the manufacturer employs many hands, the laborers purchase more, the retailer buys more goods, the jobber orders more from the manufacturer, the manufacturer, to still further increase his output, employs more hands, and every man who wants work can find it. This is prosperity. Lack of confidence causes contraction—the manufacturer is afraid to make many goods; discharges some of his laborers; they purchase less; the jobber cancels his orders; the manufacturer must still further reduce his payroll. The result is "hard times."

In view of the fact that the maintenance of high wages in the United States is largely dependent upon our increasing exports, the question is asked whether we could sustain them in competition with the cheap labor of China, were China to become a manufacturing country. The best answer is that among our other exports, we have shipped 200,000,000 yards of cotton cloth to the Chinese. The average rate of wages paid by us in its manufacture was seven times the average rate of wages prevailing in China. The Chinese, like the people in our own country who have a Chinese cast of mind, do not recognize the advantages of combination. Industrially, they are living in the land of yesterday, instead of in America, the land of to-day and to-morrow. Notwithstanding her great agricultural and mineral wealth, notwithstanding the fact that she has the largest body of cheap labor in the world, China is not an efficient competing factor in the field of pro-

duction, because, in spite of all these facilities, she has none of the antecedents, intellectual, political, financial, or mechanical, for large scale production under modern conditions, since she possesses none of the instruments of commercial greatness and social well-being. Twenty centuries of stationary policy and of looking backwards have made political progress and economic development impossible for China. She has remained in industrial infancy. Lacking organization and all that goes with organization, production on a large scale, aided by large aggregations of capital, and under conditions which attract and ennoble the greatest abilities, her agricultural and mineral wealth and her cheap labor cannot save her. She is left utterly behind in the economic race.

Our contractionists would practically have us put a wall around the United States which would reduce wages and prevent the working out of our destiny as a world power in commerce, in finance, and in the great and nobler field of doing our part in the advancement and civilization of mankind. Situated as we are, between the great oceans, combining the strength of a great land power with that of a great sea power, we are pushing our way across the Pacific as we have already done across the Atlantic. But this increase is small compared with the increase that is destined to take place when no question is being raised as to the stability of the foundations on which rests this great industrial prosperity. With our untold natural resources, with our inexhaustible supply of metals and coal, with our great forests, with every variety of soil and climate, with the most industrious, most intelligent and most contented of peoples, working under the best conditions of modern methods, we are destined to become the economic masters of the world.

INVESTIGATING THE TRUST PROBLEM.

BY MAURICE H. ROBINSON.

[Maurice H. Robinson, economist; born in New Hampshire in 1865; his special branch of economics has been industrial conditions and he has been employed as an expert in that connection, by the United States government. He is professor of industry and transportation in the University of Illinois and is the author of History of Taxation in New Hampshire and many magazine articles on the subjects in which he is an authority.] Copyright 1902 by The Yale Publishing Company

During the last decade there has been much danger that the trust problem would become a political issue; that the parties would become either champions or defenders; that legislation relating to the trusts would be political rather than economic; that partisan prejudice rather than judgment would be used in the solution of the problem that the growth of the trusts has raised. It is not too much to say that the report of the industrial commission has been the largest single influence in snatching the trust problem from the political arena and laying the basis for a permanent solution upon economic and social grounds. This result was partly due to the importance of the issue, partly to the organization of the industrial commission itself. All interests have felt that a question of such vital importance must be settled, not upon political, but upon economic principles. The organization of the commission, made up of representatives of both the great political parties, together with representatives of the leading industries and organizations of the country, made it almost impossible to use the report of the commission for partisan purposes. Still, notwithstanding these conditions, there may be discerned at intervals a slight tendency to justify by the course of events the policies of the respective political parties. This tendency, most observable in the discussion of the effect of the protective tariff upon the formation and operation of the trusts, is, however, so vague that it may be almost entirely disregarded in judging the value of the work.

The importance of the subject for which the commission was created, to "collate information and to consider and

recommend legislation to meet the problems presented by labor, agriculture and capital," justified the time and expense necessary for the preparation of such a report. The manufacturing interests of the United States are of vast and increasing importance. According to the twelfth census, the total capital invested in manufacturing amounted in 1900 to almost $10,000,000,000. The increase in invested capital from 1850 to 1900 was over seventeen fold. The value of products turned out by the manufacturing industries has increased during the century from about $100,000,000 to a little over $1,000,000,000 worth in 1850 and over $13,000,000,000 in 1900. This increase in the capital invested and the value of products in manufacturing may be compared with the value of farm property and the value of farm products. The value of farm property, according to the census returns, has increased from about $4,000,000,000 in 1850 to a little over $20,000,000,000 in 1900; the value of farm products from a little less than $2,000,000,000 in 1870 to a little less than $5,000,000,000 in 1900. It will thus be seen that while the value of the product in manufacturing has increased about twelve times, that of agriculture has increased only three times during the last half century. During this same period the increase in population has been only two and one fourth fold. The capital invested in transportation, while less than in farm property, may possibly exceed that invested in manufacturing. The total capital liabilities of the railroads of the country were in 1900 almost exactly $12,000,000,000; their gross earnings $1,500,000,000; their net earnings $500,000,000. Thus considered from the standpoint of capital invested and the value of the products, making due allowance for the duplication of the costs of production in passing from stage to stage, it is evident that the manufacturing interests of the country are nearly co-ordinate in importance with either the farming industry or that of transportation. Added to this, it must be noted that the manufacturing industries are increasing more rapidly than the others and likely to continue their progress at a somewhat faster rate in the near future.

In connection with this rapid growth on the material side, important changes are being effected in the manufacturing

industries from the standpoint of business organization. Formerly nearly all manufacturing was done by the individual entrepreneur, later by the partnership, now by the corporation; of the total production in the year 1900, nearly $8,000,000,000, or almost 60 per cent of the total output, was the work of the corporation. Out of over 500,000 independent establishments in the United States, 40,000 in round numbers were in corporate form. The corporations were 12 per cent in number and produced $59\frac{5}{10}$ per cent of the output. The partnerships were $18\frac{9}{10}$ per cent of the total number of establishments, producing $19\frac{7}{10}$ per cent of the total production. Individuals owned $78\frac{8}{10}$ per cent of the number of establishments and produced only $20\frac{6}{10}$ per cent of the total amount of production. In certain lines the progress of the corporation has been particularly rapid, viz., in the manufacture of iron and steel, agricultural implements, coke, gas, electrical apparatus, manufactured ice, rubber goods, photographic goods, etc., etc. This concentration is accomplished through the corporation, and to-day, in a word, the corporation problem has to all intents and purposes superseded the trust problem of the previous decade.

With this vast increase in the manufacturing industries of the country and the concentration of the management under a comparatively small number of corporations, the public, the investors, the economists and the statesmen have become vitally interested in their management. The public has in the past been startled, statesmen anxious, economists in doubt. Investigations have been pushed by interested students with vigor and earnestness; interested parties have been active in the defense of the so-called trusts; information has been meagre and often misleading; legislation has been enacted which is the natural outcome of the uncertainty and ignorance. Even the managers of the corporations themselves have, in some cases, expressed their own doubts as to the future of the corporations which they have created. Under these circumstances there are certain questions which ought to be answered. These questions are: First, to what extent are the manufacturing interests becoming consolidated in large establishments, usually under the corporate form?

Second, what are the causes and the economic conditions to which this movement may be attributed? Third, what forms of organization have been adopted by the consolidations, the reasons for the different forms in the different countries, the economics and dangers of each? Fourth, what elements of monopolistic power do these corporations possess? what are the methods by which they attain their monopoly? are these monopolies built upon government statutes, as, for example, patents, tariffs, franchises, or upon the aid of other interests, such as railroad discriminations, rebates, the factor system, local cuts in prices; that is, is the monopoly power of the large corporations based upon internal power or external favors? Fifth, what measure of public regulation is desirable in order that other interests may be safeguarded, that neither the consumer nor the wage earner shall be unjustly oppressed by the huge corporation?

The act of the congress of 1898, establishing the industrial commission, gave that body ample power and provided it with the means and equipment necessary to accomplish its purpose. The commission as appointed by President McKinley comprised an able body of men, all of whom were interested in the work of the commission; they employed a competent staff of experts in the several lines of inquiry, and were equipped with facilities, clerks, and stenographers. The work is therefore to be judged by its results with due regard for the magnitude of the problem. What light has it shown upon this question? Has it contributed facts that justify its existence; facts that are sufficient to furnish the basis for the proper solution of the problem?

The report of the industrial commission relating to trusts comprises four volumes directly bearing upon this subject; volumes one and thirteen upon the American trusts; volume two upon trust and corporation laws; volume eighteen upon European trusts and the laws relating to their regulation and control. In addition to these volumes the commission has published a large amount of matter bearing indirectly upon this subject; thus, volumes seven and fourteen furnish information in regard to the relations of capitalistic combination to labor; volume twelve, to the great mining corporations;

volume seven, those dealing in agricultural products, like milk and grain; volumes four and nine, relating to transportation, furnish information in regard to the discrimination of railways as they affect the great corporations; volume eleven, a report on the taxation of corporations. In addition to these volumes, the final report comprises a summary and the report of the experts employed, on (1) mining combinations, (2) railroad combinations, (3) industrial combinations, and (4) the taxation of corporations. It also contains an appendix, showing the volume of production in various lines, price statistics for various commodities, a list of industrial combinations with their capitalization and dividends, and the amendment to the anti-trust act of 1890 introduced in the fifty fifth congress by Mr. Littlefield of Maine. In the volumes relating to trusts, in addition to the testimony, there are found two papers of exceptional value, both by Professor Jenks, the expert of the commission, the one relating to prices of commodities dealt in by trusts and, second, to the character of the securities of certain railways and the more important combinations. The value of the testimony is largely enhanced by the very complete indices prepared and, for the use of the public at least, by the digests and reviews prepared by the experts of the commission. The matter relating to trusts comprises about 3,500 pages, of which about one half is testimony and the remainder reviews, digests, special report, indices, lists of witnesses, etc., etc. Over 100 witnesses appeared before the commission and testified in regard to over fifty of the larger and more important combinations. In some cases the value of the testimony regarding a certain trust was lessened by the fact that only one witness appeared, usually some one intimately connected with the organization of the corporation in question.

Having outlined the organization of the commission, the nature of the problem before it, and the general character of the report, we are now in a position to inquire, what light has the investigation thrown upon the questions involved in the trust problem?

I. The Extent and Rapidity of the Consolidation Movement. Upon this point the report throws little light.

The table of consolidations which appears in the appendix of the official report is contributed by the census, not by the commission. In the final report, Professor Jenks dismisses the subject with two pages and concludes that the figures "give no clue as to the extent to which such combinations are able to monopolize any industry." The subject is one of great difficulty; no individual is able to solve it unaided. The government alone can furnish sufficient facts upon which any adequate judgment might be based. The census of 1900 gives a large amount of such data and draws certain conclusions which are of value. A study of the census data would enable one to show the extent to which corporations are superseding partnerships and individuals in the management of business, and to what extent they have, up to the present time, succeeded in organizing the various great industries under a concentrated management. This question is yet unsolved, notwithstanding that it is the center of the trust question. If large combinations are growing no faster than the industries in which they exist, if individual enterprises keep pace with the large corporation, the consolidations will not be able to attain a monopolistic position. Legislation ought to be very different when large corporations are working side by side and merely keeping pace with individual enterprises, from that which might be required under a régime in which all industries are becoming fast consolidated into capitalistic monopolies

II. The Causes of Consolidation. Assuming that it is proven that there are large consolidations growing up in many branches of industry; that, temporarily at least, the great consolidations possess powers different from those possessed by corporations twenty five years ago; they are able to disregard to a certain extent the laws of competition,—the inquiry naturally arises as to the causes at work, or the underlying industrial conditions which are producing them. Upon this point the report of the commission gives considerable testimony of value. The men who are inside the trusts, who were with independent companies before consolidation, who have been instrumental in bringing independent companies under the consolidation form, understand from experience

the causes or conditions which have impelled them to unite. It is doubtless true that these witnesses, in their testimony, have not always told the whole truth; nevertheless they throw a flood of light upon the inside history of the formation of the great combinations. Taking the testimony as a whole, collating facts from one point with those from another, comparing these facts with each other and with the testimony of independent interests, a reasonably accurate diagnosis of the causes can be made. The men inside the great corporations emphasize the impelling power of competition as a cause. They call it destructive competition. They sometimes do not understand that the presence of a large fixed capital, useful for certain purposes but much less useful for any other, changes radically the nature and working of the laws of competition. The trained economist, however, is able to read into their testimony the underlying conditions which they often fail to see. On the other hand, the independent operators emphasize just as strongly the power of discriminations, of favors from railways to large corporations with which they have to deal. They are even inclined to think that, if railway discriminations could be prevented, if the smaller concern could be put upon a level with the larger one in buying its material and selling its products, that the progress of consolidation would at least proceed with much less rapidity. Those who read the testimony presented, therefore, must use judgment and compare these two sides of the story in order to get at the exact truth. Again, those interested in the consolidations are inclined to make light of the attractive influence of monopoly, while the outside interests are apt to emphasize its power. In this connection one needs to remember the large place given to the possibility of a monopolistic position for a consolidated corporation that one almost invariably finds in the prospectus presented to the independent interests when urging the desirability of combination. The inside interests again emphasize the possibilities of large economy in production sufficient to pay dividends upon the common stock issued as a bonus, without any advance in prices. The testimony on the whole shows, however, that in most cases the predicted economies have not been fully attained and that

often certain expenses incident to the management of business upon a large scale have crept in which partially offset the economies that have been effected Upon the basis of the facts disclosed, as summed up by the commission, the causes of combination are, first, competition; second, economy of production and distribution; third, the hope of monopoly power. The first and third of these forces, the former compelling consolidation, the latter drawing business interests together, are permanently active. The second certainly will be at work until the united establishments have attained that size which will give, under a given condition of the arts and experience in business management, the maximum economy. With the increased experience in dealing with great business interests, there seems to be no possible limit to their size, so long as men can be found of sufficient caliber to organize and manage the consolidated corporations. If then the three causes named above are the only ones answerable for the great combinations, it would seem that the dream of the socialists might after a time be realized through the evolution of the partnership into the corporation, of the corporation into the corporation of corporations, until it should finally embrace all interests which might in any way, if left independent, compete with each other.

In opposition to this view there are many witnesses who testified to the power of other forces. It will be admitted that whatever contributes to the growth of the large establishment, causing it to grow faster than its smaller neighbor, must be considered in connection with the causes that lead to the formation of the modern trusts. It is affirmed by witnesses that the policy of discrimination in freight rates, giving the competitive centers lower rates than the noncompetitive centers, giving the business man with larger resources lower rates than his weaker neighbor, has contributed in many cases to the growth of certain corporations and to the destruction of others. If this be so, and its truth can hardly be questioned, discriminations by the railroads must certainly be placed among the powerful, though less permanent forces, which have contributed to the formation of the great consolidations. It is also a well known fact, to which the testimony

in the commission bears abundant evidence, that once a corporation has gained a position of strategic importance, due, it may be, to favors from the railroads, operating over a considerable territory, it may adopt a policy of cutting prices at one point to drive out competition there while raising prices temporarily at all others. If the competition at the given point proves weak, this policy is almost invariably successful; even if competition is strong, it is often successful unless competition springs up at other points. If competition springs up at other points this policy almost invariably proves unsuccessful and the consolidation in this case must make use of large economies in order to maintain its existence. The history of the National Asphalt company, the National Cordage company, and the National Wall Paper company proves conclusively that where economies of production are not for any reason attained, such a policy will usually prove unsuccessful in the end. The profits that come from a policy of discrimination may furnish the basis of a consolidation, which afterwards may be maintained by establishing large economies in production.

It is also affirmed that the desire to take advantage of the laws of the country, especially the protective tariff and the patent system, has contributed to build up consolidations. These influences are to be considered in connection with the desire to attain a monopolistic position. Whatever may give a monopoly will always prove an attractive force in drawing conflicting interests together, provided that after consolidation they are reasonably sure of attaining the fruits of such monopoly. If the tariff wall or the possession of a patent right will give a consolidation the exclusive control of a certain line of commodities within the United States, it is evident that such consolidation will be able to maintain prices above the competitive level of the world. The opportunity for a monopoly will thus be present within the industry, and will always hold out certain inducements to the interests which may prove powerful enough to bring them together. To this fact, the witnesses before the commission gave abundant evidence.

In addition to these causes one other ought to be mentioned which is perhaps not sufficiently emphasized in the

report of the commission. This factor was emphasized by President Hadley in an article on the "Formation and Control of Trusts." President Hadley calls attention to the fact that the formation of a large company, placing its shares upon the market, enables its owners to sell their interests to better advantage than they were able to do as independent interests. There seems to be a psychological principle operating which attracts American investors toward the big concern; mere bigness is considered to be a virtue and a small share in a big concern is more highly esteemed than a large share in a small concern; that is, the investor puts a premium upon the value of a large enterprise and the men who have been most active in the formation of the large corporations have discovered this principle and have made use of it for their own profit. Suppose a corporation is formed of several independent concerns whose combined value is $10,000,000; let the promoter capitalize it at $20,000,000 in shares of $100 each and sell it out to the public. The history of recent consolidation shows, in general, that he may sell the entire concern for considerable more than he would have been able to obtain if he had capitalized it simply at its real value, $10,000,000. It is doubtless true that this factor is not a permanent one, and with more experience with the great corporation it will gradually lose its force. At the present time, however, it is a factor that must not be neglected in the summary of the causes at work producing the great corporate consolidations.

The formation of consolidations in industry has often been treated as an isolated phenomenon in the economic world. This has led to much misapprehension. The forces at work producing the industrial consolidations are the permanent integrating forces that are at work in all society. These forces differ somewhat from the forces at work in the political world, or from those at work in the distinctly social world. They differ, however, not so much in principle as in the specific way in which they operate. The consolidation of industry must be considered as a part of the evolution of society. Society to-day differs from the society of yesterday chiefly in point of organization. Permanent forces are at work in all lines of human activity, organizing men's interests into higher

and higher forms. This is seen in the progress of labor unions, in the organization of business associations, in the organization of governments, and at the present time, most pronouncedly in the higher organizations of modern business.

III. The Form of Consolidated Industries. It has often been stated that the form which consolidated industry assumes is of small account, that it is the purpose rather than the form that is of chief interest. It is entirely true that form is of less importance than the character and working of the consolidation. Still, when it is once recognized that the modern trust is a business organization and that in each organization of industry form is a factor of powerful influence, this question will not be lightly passed over. It is certainly true that the form under which business operations are conducted determines to a large extent the economies possible and to a certain degree the policy of the business. The partnership has certain advantages, the combination of interests into a pool or the kartel certain other advantages; the corporation still others. The form which the consolidation assumes determines, to a considerable extent at least, the question of whether it will find it desirable in its operations to aim at a low cost of production or higher prices for its products. In America, consolidated industry has finally taken the corporate form; the same is true in England and to a certain extent in Germany and Austria. In general, however, the German form for the consolidation of industry is the kartel, or the industrial combination proper. The testimony, and especially the report, of Professor Jenks on the European trusts shows that there is a vast difference in the working and in the effect within the industry itself and upon industries with which it is brought in connection, of a trust under the kartel form from that of a trust under the corporate form. The great corporation is, of course, a higher form of organization than the kartel. It harmonizes the entire interests of the industry consolidated. Its permanent interests are always dependent upon lowering the cost of production and increasing the output. It thus tends naturally to reduce prices in order to increase its market. The German combination, on the other hand, depends largely upon its monopolistic position or at

least upon a partial monopoly within its field. It is not so much interested from the economic standpoint in lowering the cost of production as in lessening the output or increasing the prices of its goods. The question of form thus becomes a factor of the first importance in relation to the subject of international trade. The value of the corporation as a form for conducting large enterprises is emphasized upon almost every page of the testimony and especially by such witnesses as James B. Dill, John R. Dos Passos, and by such corporation leaders as Schwab, Flint, Thurber, Stetson, Gary, and others. The form which consolidated industry assumes is not only important from a political standpoint, it is of large importance from the standpoint of the investor. The process of consolidation, the formation of a huge corporation out of many small ones, gives a large opportunity for inside manipulation and for the operation of the corporation for Wall street purposes. The question of capitalization thus becomes one of public importance, since it is likely to affect the policy adopted by the corporation itself. The witnesses before the commission generally agree that the inflated capitalization has no effect whatever on the prices of the goods sold. It is assumed that in all cases the corporation obtains as much as possible for its services. The increase in the amount of capital then will not enable the corporation to demand or receive higher prices; if it asks higher prices, it will sell less goods; and if, as it is assumed, it was obtaining the maximum revenue, an increase in price means a lessening of profits. Still there is evidence in the report of the commission to show that while the amount of the capital issued does not affect its ability to put up prices, it does materially affect the policy of the directors in the conduct of its business. The amount of capital then is an important factor in determining whether the corporation shall be conducted for the purposes of economy in production or for stock speculation. The question of watered stock, which affects primarily the corporation in its relation to the investor, thus becomes a question in which the public are vitally interested. This constitutes the economic basis upon which legislation may be asked to prevent the evils that come from a flagrant watering of stock. The form of the union, too,

determines the process of formation; that is, the promotion and underwriting of the consolidation. The report of the commission shows that at present the laws of the states in which the corporations are chiefly formed, are singularly defective in protecting legitimate business interests in these points. Corporations are necessary for the permanent development of the industries of the country, and the investors in these corporations ought to be protected as a matter of public policy, so that with reasonable care on their part their investments may be attracted into those lines where capital is most needed; that is, where the social demand for production is most urgent. If the investors are not protected, it means simply that the development of the industrial resources of the country will be retarded, and the demand not satisfied, unless the investors are able to protect themselves until public policy provides sufficient regulation over the formation of corporations to allow investments to be made with reasonable safety.

IV. The Monopoly Power of Combinations. The fourth question in the solution of the trust problem asks whether any of the great corporations have a monopolistic character, and if so, upon what basis this monopoly rests. The testimony upon this point is interesting and instructive, if not conclusive. The monopoly power of a combination is shown in the control of prices, of wages, and of the rate of interest. The first two are of more importance in this connection, since the capitalist is usually combined with the entrepreneur in the formation of the consolidation. Both the consumer and the wage earner are outside. It is impossible for the consolidations to form a union with the consumers. It is not impossible for them to join with the wage earners, especially where the wage earners are united into some form of labor organization. The study of the monopolistic position of the great corporations ought to investigate especially the question of the relation of the consolidations to prices and wages. Professor Jenks's study of prices found in the first volume of the report is an interesting beginning in this line. If the consolidations are able to raise prices, this will be shown in the increase of the margin of profit. Professor Jenks's study shows conclusively that for a certain

length of time at least the greater corporations have been able to increase the margin of profits. This study ought to be extended now that the way has been pointed out. The report furnishes a certain amount of material upon which a study could be based, and in addition material will be found in the bulletin of the department of labor for July, 1900, in the report of the senate committee on prices and wages, and in the bulletin of the department of labor for March, 1902, on the course of wholesale prices from 1890 to 1901. It is possible to determine from a study of the available data certain facts with regard to the control of prices by the consolidations, that are now mere opinion. The chief defect of the report of the commission is that it often deals with opinions when it might have given us facts. Possibly this defect is incident to the method of the investigation, the examination of witnesses from all callings in life; still it will generally be admitted that the commission might have given the public more of the kind of work that is included in Jenks's study of prices. To illustrate: the report of the commission devotes a very large space, both in the testimony and in its final report to the relation of the tariff and the trusts. The question of the tariff has been made so much a political one that the investigation is less valuable. It is everywhere evident that party interests are attempting to justify party policy or make political capital out of the interrelation of the trusts to the tariffs. It is stated, for instance, that the tariff "is the mother of trusts," that the tariff is responsible to a large extent for the existence of the trusts in the United States. In answer to this charge attention is called to the fact that trusts exist in England. Therefore, the conclusion is that the tariff is not responsible for the trusts. This is nothing more nor less than an attempt to throw dust into the eyes of the public. The whole question is not, does the existence of the protective tariff favor the formation of trusts, but rather, under the protective régime are the trusts, after their formation, able to increase the margin of profit, to raise the level of prices above the competitive level? This is the question at issue and one which cannot be answered by the expression of opinion, but by a study of facts. How do the

prices of trust made goods in England compare with prices in other countries? How do the prices of trust made goods in the United States compare with the same trust made goods in England or in Germany? These questions are capable of solution by statistical methods. For example, it would be possible to study the operations of the steel trust, and show within reasonable limits what proportion of the profits of the corporation is due to the fact that it operates within the protection of the tariff wall. On the other hand, certain industries in this country have no protection whatever. Here home and foreign competition tend to keep prices at the competitive level. In the establishment of the protective system it was assumed that while foreign competition would be removed to a certain extent, domestic competition would still be present to keep the price of the goods near the domestic cost of production. The formation of trusts within the protected industries has changed the conditions and enables a protected trust to permanently keep the prices for its goods in the home market at a level with the prices at which goods can be imported. Thus reduction of the cost of production increases the profits of the trusts. With increasing prices comes increased competition; with increasing competition among the investors within this line, further consolidation, increased cost of production, and permanently higher prices. With the ability to maintain higher prices at home the temptation is strong to sell the surplus product in the foreign market at low prices in order to keep up the prices at home. This means that the protective tariff, which was originally adopted to encourage the growth of domestic manufactures, has become, under changed industrial conditions, the means by which consolidated industries are able to deflect a certain proportion of the social product from other lines into their own treasury. The report of the industrial commission furnishes a large amount of evidence to substantiate these views.

The testimony also shows that the monopolistic position of the great corporations have been aided by railway discriminations, by the use of the factor system and by the policy of destructive competition at certain points in order that the great companies might be freed from the annoyance of local

competition. All these systems have been used to build up and maintain monopoly prices.

The influence of the factor system has undoubtedly been too much emphasized. The testimony before the commission shows that while the factor system may aid the trusts in maintaining prices slightly above the competitive level, it is very seldom able to secure a permanent increase in price. Nevertheless, its use may supplement the great forces that have been called in to aid the great consolidations in their attempt to gain supremacy within their own domain.

In every line of industry one fact of utmost importance stands out clear and bold, that is, the vitality of competition. In the sugar industry, in the iron and steel industry, in the tobacco industry, in the rope and twine industry, in the asphalt industry, in fact everywhere, competition, notwithstanding consolidation, is a factor that the modern business man may neglect only at his peril. The rapidity with which capital has been accumulated within the last few years, the abundance of talent in the administrative work of the corporation, make it impossible to crush competition except by depending upon the lowest cost of production. Railway discriminations may favor consolidation, the tariff and patent monopolies may contribute to their support; still wherever, for any length of time, any one of the corporations has attempted to maintain prices above the competitive level, the inevitable result has been the attraction of new capital and brains. The modern corporations, therefore, have gradually been forced to realize that safety lies only in securing the lowest cost of production and maintaining prices at a level which will not attract new capital into the industry. The sugar trust has found this in the competition with the Arbuckles. The steel corporation meets competition at every point, and even the Standard Oil company has a powerful competitor. The course of events seems to be everywhere the same. The trusts when formed usually consolidate about 90 per cent of a given industry. Under these conditions it is not difficult to keep up prices for a time.

The high rate of prices attracts new capital; soon the trust controls not 90 per cent but 70 per cent or even 60 per

cent or less of the production. The facts showing the development of new competition side by side with the great consolidations, are perhaps the most important ones that the report of the industrial commission has given the world. These facts ought to be recognized both by the consolidations and by the legislators; by the consolidations, since their existence depends upon observing the course of events in this particular; by the legislators, since laws are unnecessary to protect the public so long as the competitive forces are able to work.

Upon the subject of wages, there is a large amount of testimony, the most of which is of small value. It is generally shown that the consolidations have not reduced the wages of labor. It is not shown, however, what is the effect of consolidations on the growth of labor unions and the consequent ability of labor unions to protect themselves. There is a certain amount of evidence at least to show that so far the tendency has been to unite the forces of the consolidations with those of the labor unions to secure higher wages for the members of the union and somewhat higher prices for the products. This simply means that the added profits have been maintained with the aid of the laborers employed, at the expense of the public and the outside laborers. If this be the fact, it is evident that the union of the trusts with the labor unions constitutes one of the most dangerous features in connection with the consolidation of industry.

V. The Public Control of Consolidations. This subject, which ought to be considered only after a full investigation of the four preceding ones, is treated by the commission with considerable fullness. John R. Dos Passos and Charles C. Allen testified at length on this subject. Professor Huffcut treats the subject in its legal aspects, and it is considered in the final report by both Professor Jenks and Mr. Stimson, the legal representative of the commission. Much attention is also given this subject in the examination of witnesses. The general source of information upon this topic is furnished by volumes two and eighteen. Volume two gives the anti-trust legislation both of the United States and of the states and the decisions of the courts, together with a summary of

the corporation law of the various states in the United States. The report of Professor Jenks in volume eighteen gives the laws relating to corporations in foreign countries, especially England, Germany and Austria. Professor Jenks's report is especially valuable, showing, as it does, the effectiveness of foreign legislation in checking the growth of speculative corporations, limiting their power, and directing their activities within legitimate channels. The examination of the witnesses who testified in regard to the corporation law of New Jersey, Delaware and West Virginia, shows the weakness of our present corporation law under changed economic conditions. The present law was formulated and enacted for the government of small corporations, working under the laws of competition. These laws are entirely inadequate to govern the large corporations, some of which have a certain degree of monopolistic power. This investigation of state corporation law calls attention to two aspects of the problem that ought not to be neglected. First, the control of the corporations by means of improving the statute laws of the various states, and, second, the control of corporations through a federal corporation law. The testimony regarding the corporation law of those states in which the great corporations are chiefly formed show how inadequate are the present laws to control corporations whose business is world-wide. Both the public and the lawmakers are beginning to see the folly of granting charters with no restrictions upon the operations of the giant corporations and afterwards filling the statute books with drastic laws attempting to curb the creatures which have grown strong on the favors given them. If the report of the commission should have no other effect save that of calling attention to the absolute necessity of revising the corporation laws to fit the changed economic conditions, it would be justified in its existence. The investigation of the Industrial commission directs attention to the desirability of changes in the state laws or to the adoption of a federal corporation law. The difficulties of the latter step are fully discussed by Professor Huffcut in his paper "on the constitutional aspects of the federal control of corporations." Its advantages and disadvantages are considered by such attorneys as James B.

Dill and John R. Dos Passos. The commission itself recommended a federal corporation law, only in case federal supervision and taxation proved inadequate, "to properly control the great corporations and combinations." Such action, involving, as it would, radical changes in the government and the courts, it hopes may be avoided by federal supervision and taxation. To accomplish this it is proposed to establish a bureau of the treasury department, to register all corporations engaged in interstate commerce, to secure the reports necessary to tax their franchises, to inspect their books, to see that their accounts are properly kept, and to collate and publish information in regard to their operations for the use of congress. It is thought by the commission that such provision "will be sufficient to remove most of the abuses which have arisen in connection with the industrial combinations." In addition to this recommendation and to those formulated in the preliminary report, the commission further recommends, (1) that the anti-trust laws be strictly enforced; (2) that the policy of making local cuts in prices and discriminations to individuals be made a penal and criminal offence; (3) that provisions similar to the anti-stock-watering laws of Massachusetts be enacted and enforced. On the whole, the recommendations of the commission are less radical than might have been expected. It is improbable, however, that the program proposed will be adopted by congress. The chief value of the recommendations consist not in themselves, but in their effect upon the public mind and upon future legislation.

THE GOOD AND THE BAD OF TRUSTS.

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Since most writers recognize that the recent combinations of capital have developed monopolistic tendencies to a considerable extent, the outlook for the future becomes a most interesting and important problem. Under all the circumstances, it is not surprising that recent years have witnessed numerous attempts to bring the control of various industries into the hands of single corporations of colossal magnitude, which possess and exercise the power of monopoly. But the reader of recent trust literature finds that many writers of recognized authority contend that these conditions of centralized control are to be permanent in industries that require heavy investments of capital for their successful prosecution, and that competition is a thing of the past.

In considering this proposition, careful discrimination is necessary at the very outset. There are three possible conditions under which industries may be conducted—production upon a small scale, production upon a large scale, and centralized management by a single company or combination. Every student of economic history knows that production upon a small scale was long ago superseded in most important branches of manufactures by undertakings of a large size. The combinations of recent years have sought to replace these large establishments by single consolidated enterprises; and this is the real meaning of the trust movement and the arguments advanced to prove its natural and desirable character. No one wishes to revert to the stage when production was carried on by small establishments. Controversy exists only

concerning the advantages of superseding large scale production by combinations that include all important establishments in a single line of business. The "industrial combination," which those who take a generally favorable view of trusts are upholding, must mean the replacement of independent enterprises already conducted on a large scale by a single centralized management. To combinations of this character writers may or may not apply the term "monopolies;" but the real issue, nevertheless, is the alleged superiority of a single body of producers over independent rival concerns.

When it is contended that combination means not "necessarily one great trust, comprising one great industry," but merely "an enlargement of capital," we must insist that this is not what the arguments in favor of centralization are considered or designed to prove. When another writer tells us that combination may be contrasted not with competition, but with "isolation"—by which, probably, production in small establishments is to be understood—we may properly remind him that in his own works combination is used as the opposite of competition, and that he says that sometimes "industrial units which are necessary for proper utilization of labor become so large as to produce actual monopoly." When others tell us that the trusts have seldom secured that immunity from competition which monopoly implies, it must be replied that this fact serves merely to discredit some of the arguments intended to prove the superiority of consolidation, and does not alter the purpose for which these arguments are advanced.

If the tendency towards combination means anything, it means the substitution of centralized and consolidated management for the rivalry of independent concerns; and this may fairly be termed monopoly. If, furthermore, the advocates of combinations intend to defend nothing more than production upon a large scale, they should revise their list of arguments designed to prove that competition is "wasteful," "destructive," "suicidal," and "a thing of the past;" and should make it clear that they do not uphold the action of most of our trusts in consolidating all establish-

ments of a given class, in order to "regulate production" or to "remove the evils of competition." We may advise the reader, therefore, to grasp firmly the distinction between large scale production and monopoly, and to note carefully whether the arguments advanced in favor of combination relate to the one thing or the other. Unless this is done, clearness of thought becomes impossible.

Does the trust movement, then, mean a permanent régime of monopoly in industries where large amounts of capital must be employed? Some writers who consider the movement to be, upon the whole, a desirable development in industry, answer clearly in the negative. Thus Professor Sherwood says that the dominant position which trusts now enjoy depends mainly upon "monopoly of undertaking ability," and that this is "in its nature temporary and the result of a competitive process." The large gains that now accrue to these monopolistic enterprises are merely a temporary reward for the development of a superior form of business organization. And Mr. Carnegie, Mr. Dill, Mr. Wanamaker, and others insist that "every attempt to monopolize the manufacture of any staple article carries within its own bosom the seeds of failure," or that "no men, or body of men, have ever been able, or will be able, permanently to hold control of any one article of trade and commerce." But the arguments of most of those who take a favorable view of trusts cannot be given such interpretation. Some writers state clearly and frankly that "the competitive system of industry is fast passing away," and that all lines of business "are, or soon are to be, monopolized;" that "monopolies of every sort are an inevitable result from certain conditions of modern civilization;" "that experience seems to justify the belief that monopoly within certain limits . . . may be secured simply by the possession of large capital;" or that trusts represent "a vast accumulation of productive resources which renders the competition of small concerns hopeless." And this is the view, of course, which is entertained by persons of socialistic tendencies. Sometimes it is attempted to add force to such arguments by calling combination the result of an evolutionary process of survival; and one writer remarks

that the trust is "an evolution from the heterogeneous to the homogeneous,"—a statement which will interest those who happen to remember the Spencerian formula. But other economists are less explicit. Writing of the trusts, von Halle says that "in the manufacturing industries, the victory of production on a large scale seems assured;" and he concludes his work with the somewhat oracular remark that "the future belongs neither to the prophets of individualism, nor to the ideals of the social democrats." Mr. Brooks thinks that "practical monopolies" have been formed, but that they can be permanent only in case "they put some kind of economic superiority upon the market." Mr. Collier, rather inconsistently, says that competition is "business committing suicide," and then thinks that the trusts will be controlled by potential competition. Professor Bemis looks upon a trust as "virtually a monopoly of large capital," possessing "vast possibilities of social advantage;" but thinks that we cannot pronounce a final judgment "until we have first removed all special privileges." And, finally, President Hadley believes that modern conditions "work in favor of those who advocate combination, and make it harder for independent competitors to resist it, or for the law to prohibit it on grounds of public policy;" yet he holds that, if prices are raised unduly, "new capital will come into the business." But, if the advantages of industrial combinations, in both producing and marketing their products, are as great as most of these writers affirm, it is hard to see how unity of management can fail to secure ultimate control of most branches of manufactures. The lack of explicit forecasts of the future need not, therefore, prevent us from concluding that the general position of these economists is that a tendency to prevent monopoly may be clearly recognized. But economists who think that, for the future, monopoly is to be the order of the day, generally consider that this control of industry will be limited by what is termed potential competition. Thus they do not affirm that absolute monopoly will prevail, but merely such a control of production and prices as will not tempt new capital into the field. To this subject we shall return in our later paragraphs.

Attention may now be directed to the reasons for this belief in the tendency of large scale production to pass over into monopoly, and to the criticisms which such views evoke from writers who deny the existence of such a tendency. In favor of this proposition three general lines of argument may be distinguished: (a) the contention that a consolidated enterprise possesses advantages over independent companies in producing and marketing its goods; (b) the claim that mere mass of capital confers powers of destructive warfare so great as to deter possible competitors from entering the field; (c) the belief that modern competition between large rival establishments, representing heavy investments of fixed capital, is injurious to the public, ruinous to the producers, and in its final outcome self destructive. As our discussion proceeds, it will become evident to the reader that all of these arguments can be employed, with consistency, only by those who believe that the competitive régime is to be replaced by an era of monopoly.

First in this list is the contention that a consolidated concern is a more efficient agent of production and exchange. It is claimed that a combination can effect a saving in no less than twenty different directions; and the economy arising from such sources is declared to be great enough to give the trust a control over the market based solely upon superior efficiency, and to make competition "hopeless." For this reason it is held that such combinations may confer "enormous" benefits upon society. The critic may well entertain the suspicion, however, after reading what is said upon this subject, that these arguments prove almost too much; for, if in twenty directions substantial economies may be realized by a combination, it would seem that the utter futility of competition would have been recognized by the business world long ago. If these arguments be altogether true, how is it that the trusts find competition so troublesome, and consider it "good business" to resort to the most disagreeable means of driving "interlopers" out of the field? Such tactics are decidedly "bad business," if they are needless; and we can hardly think that the shrewd managers of the

trusts would care to arouse public resentment by unnecessarily harsh methods.

To consider this line of argument in any complete manner would expand this article into a volume; and we can discuss, therefore, only some of the more important savings that trusts are believed to realize. Of the twenty specific economies that have been enumerated, we shall take no notice of eleven, five of which may be considered either doubtful or of minor importance, and the others of which represent no substantial advantages which large independent companies cannot secure. Three more may be set aside for incidental discussion in connection with the views of those who deny the tendency to monopoly. Of the remainder, three items relate to advantages in the manufacture and three to economies in the exchange of products.

Thus it is claimed that trusts, by filling orders from the nearest plant, can effect a great saving in cross freights. But data upon this question show comparatively small results. The reason for this is not difficult to discover, and has been recently explained by a writer who has heretofore emphasized most strongly this particular economy of consolidation. When the monopolized product is of a bulky sort, the industry is already localized pretty thoroughly before combination takes place; and, since most of the former independent establishments were producing chiefly for their natural local constituencies, the trust can save little in cross freights. When, however, the product is light, transportation charges become a matter of small moment. In either case the room for saving in cross freights is not nearly as large as has been represented, while often it does not exist.

Then it is urged that a trust can draw upon all the patent devices of the constituent companies, and employ only those that are most efficient. But advantages accruing from this fact will in most cases prove to be of a temporary nature, as trusts that have tried to base a monopoly upon the control of all available patents have learned in the past, and will learn in the future. Moreover, a simple reform in our patent laws will make the best processes available for all producers at any time that the public finds

such a measure to be necessary for protection against monopoly. Here, then, we find no natural law working resistlessly towards combination, but a man made device which can be regulated as public policy may dictate.

Again, we are told that a trust can produce more cheaply than separate concerns, because all the plants utilized can be run at their full capacity; whereas, under competition, many establishments can be kept in operation but a part of the time. Two observations may be made concerning this claim. First, the extent of the economies thus realized is grossly exaggerated. The whiskey combination furnishes the stock illustration employed to enforce this argument; and we are told that this trust was able to close all but twelve out of the eighty constituent plants, and yet produce almost the same quantity of spirits that formerly had been put upon the market. But the distilling industry is a highly exceptional case. For twenty five years prior to the formation of the trust the federal tax upon whiskey had been so manipulated by the distillers as to call into the industry enormously excessive investments of capital. Competition, of itself, would never have produced conditions even remotely resembling those that prevailed in this business from 1865 to 1887. The sugar refining industry is another stock illustration, but here, it is conceded, the tariff had given an undue stimulus to investments; and the same thing is true, probably, of many, if not most, of the trusts that have been able to close up a considerable number of plants. In general, it may be denied that, whenever governmental interference has not produced unhealthy and abnormal conditions, competition has led to such absurdly excessive investments as is commonly assumed. We must concede, however, that under normal conditions some reduction can be made in the number of plants required to supply the market at ordinary times; but this does not dispose of the matter. If a trust is to be prepared for supplying the market promptly in times of rapidly increasing demand, it is necessary that some surplus productive capacity must exist in periods of stationary or decreasing demand; for as believers in the tendency to monopoly often remind us, many months, or even one or two years, are required for

the construction of new plants. When this fact is taken into account, the case will stand as follows: except where the action of government has produced abnormal conditions, the capacity of competing establishments does not exceed the requirements of the market to any such degree as is commonly assumed; even a trust must provide for periods of expanding trade, and this fact diminishes materially the margin for saving by avoiding the burden of idle factories; even then, not all rival establishments suffer seriously from inability to find continuous employment for their plants, so that probably the advantages secured by the trust are of consequence only when the least fortunate or least efficient independent concerns are made the basis of comparison. In those cases, however, where abnormal conditions have been created by the operation of our tax laws, we need entertain no surprise at the appearance of consolidated companies. But in the future, it may be asserted, this particular force will not prevent rival companies from competing for a share of an increasing trade.

The last three economies relate to advantage in buying materials or selling products. It is urged that a combination can purchase its raw materials more cheaply than separate concerns. This would probably be interesting news to many large companies not connected with trusts, and Professor Ely is undoubtedly right in remarking that all ability in bargaining is not controlled by combinations. No one doubts that a large company can often secure better terms than a small establishment; but it is not so clear that every trust can secure supplies more cheaply than large independent enterprises, unless it is true that all combinations can arbitrarily depress the prices of the materials which they consume. Undoubtedly, this has been done by some of the trusts, although their partisans deny it; but such a saving represents no social gain, and sometimes it may be possible for would be competitors to profit by the depressed condition of the market for raw materials. We do not need to deny that any combination can gain an advantage in the purchase of supplies, in order to support the contention that no general advantage accrues to the trusts from this source. On this point a

majority of forty one combinations recently investigated "did not answer this question specifically," while the representations made by the minority claimed no great economy in purchases except in a few cases. Even when considerable savings are realized, it is always possible that these represent, chiefly or wholly, gains on that part of the aggregate purchases which was formerly made by the smaller and weaker establishments; so that the realizing of a net gain does not establish the existence of an advantage over the largest companies that entered the combination.

Finally, we come to economies in advertising and in soliciting business, where the wastes of competition are certainly serious and the room for improvement correspondingly great. Those who deny the tendency to monopoly generally admit that a trust can have a material advantage here, while those who affirm the existence of such a tendency evidently realize that their case is strongest at this point. Yet an opportunity for saving in these departments does not always exist, and the extent of the economy is easily exaggerated in other cases. Mr. Nettleton is right when he says: "But to whatever extent the trust organizers have counted on practically cancelling expenditure for these two items, on the ground that buyers will be obliged to come to the sole manufacturers, they are likely to be surprised. Those trusts that have tried this experiment have discovered that demand for commodities falls off with remarkable rapidity as soon as effort in pushing sales is materially reduced. To an extent which few appreciate, the buying public has become accustomed to being reminded of its needs before making purchases. The country merchant often has more inertia than enterprise, and, with the periodical visits of his favorite drummer discontinued, his orders dwindle or are delayed until unseasonable. Except in staple and absolutely necessary commodities, demand is largely created and maintained by advertising through periodicals, catalogues, or traveling salesmen. Hence, the trust that expects to save the bulk of this important item must also expect to lose through diminished sales more than the economy represents. This is not theory, but the testimony of leading dealers in many lines."

Moreover, those who believe in the permanence of competition will not lose sight of another consideration which is advanced by Professor Marshall, who writes concerning the economies accruing from these sources: "But its weakness in this regard lies in the fact that to keep its monopoly it must be always bargaining and manœuvring on a large scale. And if its monopoly is invaded, it must bargain and manœuvre widely in matters of detail as well as in larger affairs."

The result of our discussion up to this point would seem to be that any advantages of a monopoly over independent concerns of a large size are but slight, except in the single matter of effecting sales. We must now take into account certain counteracting forces, upon which some writers rest their belief that competition will ultimately prevail. These economists contend, in the first place, that, outside the field of the natural monopolies, the growth of a business enterprise is limited by the fact that companies of a certain size will secure "maximum efficiency" of investment, and that beyond this point concentration brings no increase in productive capacity. Without introducing the arguments of professional economists upon the subject, it may be pointed out that this view is entertained by many men who have a practical acquaintance with our large manufacturing industries. This position is based upon the belief that a factory of a certain size will enable machinery to be employed in the most advantageous manner; that a reasonable number of such plants will make possible all needful specialization of production; that allied and subsidiary industries can be, and are, carried on by large independent concerns; and that the cost and difficulties of supervision increase rapidly after a business is enlarged beyond a certain size, especially when it is attempted to unite plants situated in different parts of the country. For this reason, increased output does not decrease the burden of fixed charges after a company attains a certain magnitude; but, on the contrary, new charges arise. Among such new expenses, not the least important are the cost of employing the most skilled legal talent to steer the combination just close enough to the law, the expenses necessary for "legislative" and "educational" purposes, and the outlays

for stifling competition or the continual "buying out" of would be rivals.

Not only is it denied that consolidation secures no decrease of fixed charges over independent concerns possessing sufficient capital, but it is argued that an established monopoly will suffer actual loss from listless and unprogressive management. As the New York Journal of Commerce rightly insists, "it is not to be denied that such concentrations of management will be subject to countervailing offsets from the absence of the stimulus of competition; from the uncertainty about the management falling into the best possible hands; from the discouragement to invention which always attends monopoly; and from the possibility that the administration may be intrusted to 'friends' rather than to experts." And the existence of such drawbacks is admitted by many of those who believe combination to be desirable and inevitable. As Professor Clark suggests, an established monopoly, secure in the possession of the markets of a large country, "would not need to be forever pulling out its machines and putting in better," so that, as compared with countries where industry is upon a competitive basis, such a combination would fall behind in the struggle for international trade. In ruthlessly and unceasingly displacing expensive machinery with newer and better appliances, American manufacturers have probably led the world; but monopolies will inevitably feel reluctant to continue such an energetic policy of improvement. As combinations obtain a greater age, they will persist in old and established methods; while nepotism and favoritism, tending towards hereditary office-holding will replace the energetic management that some of the trusts now display. Andrews is correct in holding that the quest for able and progressive management, which often marks the efforts of existing trusts to make their dominating position secure, is no argument against the probability of future apathy when monopolies have been long established.

Here we may refer to two of the alleged advantages of trusts. It is said that combinations develop abler management through the opportunity they afford for a specialization of skill upon the part of their officials, and that efficiency

is increased by a comparison of the methods and costs of production in the various plants. The first of these advantages may be open to question, since it is not clear that large independent concerns do not afford sufficient room for specialization of talent; while it may be denied that, in the long run, any possible gain from this source will suffice to counterbalance the apathy begotten by monopoly. Concerning the second it may be remarked that, at the outset, this gain would accrue only to the least efficient plants, and would not make the combination superior to the best of the original establishments; while, after a time, although all the factories might be brought up to the same level, the lack of competition would retard the rate of future improvement.

When it is contended that the "strength of the trust is that it gives the opportunity for the exercise of these highest qualities of industrial leadership," and that it gives us "a process of natural selection of the very highest order," we may question whether stock speculation and other causes lying outside the sphere of mere productive efficiency have not had more to do with the formation of recent combinations than demonstrated superiority in business management. And, even if it be admitted that dominating powers of leadership have played their part in the movement, it may be asserted that the establishment of permanent monopoly will interfere seriously with the future process of selection. Professor Lindsay has remarked very justly that the "development of a high order of undertaking genius in the few seems . . . . to depend upon a wide range of undertaking experience in the many," and that under a régime of trusts "we would in the course of a few generations have very little available material from which to make selections." It must be remembered that the able leaders now at the head of the successful trusts were developed out of a field which afforded the widest opportunity for creative ability and independent initiative. These are the supreme qualities requisite for great industrial leadership; and they are not likely to be fostered by a régime which, if the believers in monopoly are to be taken at their word, closes each important branch of manufactures to new enterprises, and renders

hopeless all competition with a single consolidated company. Will successive generations of bureau chiefs or heads of departments in long established corporations be able to continue the race of masterful leaders, which freedom in originating and organizing independent industries has given us in the present age?

This leads to another consideration. In an industry organized upon a national scale, under the control of a single company, there must arise an "irrepressible conflict" between that central responsibility necessary for intelligent, unified management and that individual freedom and energy requisite for the healthful life of the separate members. For centralized control, elaborate and costly administrative apparatus is absolutely essential; and this mechanism of superintendence soon becomes fixed and bureaucratic in its methods, so that it bears heavily upon the individual parts. President Hadley has said recently that, as trusts gain in age and experience, good private business will become so similar to good public business that it will make little difference whether an enterprise is carried on by the public or by individuals. In one respect, at least, his argument is well founded. Governmental enterprises usually suffer, at least when conducted upon an extensive scale, from the lack of that stimulus which only competition can give and from the growth of fixed bureaucratic methods of control. A private monopoly that engrosses an entire branch of industry must develop inevitably, in the course of time, the very characteristics that impair the efficiency of a public undertaking. Both will exhibit the tendency to unprogressive management which comes from the absence of competition and the weight of centralized administrative machinery.

When all the arguments are sifted, and the balance of advantage or disadvantage is determined, there is reason for thinking that the losses due to monopoly will more than offset occasional slight gains in the work of manufacture and the more substantial savings in placing products upon the market. This conclusion is strengthened by the showing which most of the trusts have made in the payment of dividends upon their securities. As is well known, the preferred

shares have usually represented the amount paid in cash or securities for the plants that have been purchased and for the working capital supplied by the financier. The common stock represented nothing more than "the substance of things hoped for" in the way of alleged economies of operation. Although times have been unusually prosperous, and prices, already high, have often been increased by the trusts, dividends on the common stock have almost universally disappointed the expectations of those who invested with the hope of securing a part of the "enormous" savings of combination.

The second argument advanced to prove the tendency to monopoly is the claim that mere mass of capital confers such powers of destructive warfare as to deter possible competitors from entering the industry, at least until prices have long been held above the competitive rate. It is said that a large combination can lower prices below the cost of production in any locality where a small rival concern is established, thus driving it out of the field. If, on the other hand, a large rival company attempts to compete in all markets, this will mean an investment of capital in excess of the needs of trade, with a consequent depression of business and loss to all concerned. Without doubt the destructive competition waged by combinations is an important consideration, and it may well enough re-enforce monopoly where other attendant circumstances favor consolidation. But a monopoly based solely upon this power would be, confessedly, a temporary affair; for probably no one would claim that all capitalists would be intimidated permanently by such circumstances. This argument, therefore, may be used properly enough to strengthen the conclusions drawn from the alleged economies in production; but it does not of itself establish the existence of a permanent tendency to monopoly. Of this truth, any one who observes the trouble which trusts are having with new enterprises at the present moment may obtain sufficient evidence.

It should not be forgotten, furthermore, that this argument depends upon the fact that combinations at present are allowed to employ the weapons of discriminating prices

and other tactics, which violate every one's sense of fair play although they may be difficult to suppress. If uniform price lists could be made obligatory, then this power of intimidating rivals would largely disappear; for, if a trust must give its product away in all markets in order to ruin a competitor who enters a portion of the field, then its losses would be proportionate to the mass of capital, and the advantage over the independent concern would disappear. Without doubt the prevention of price discriminations would be a work of great difficulty; but, if this must be done in order to prevent the abuses of monopoly, then some way of accomplishing the result can and will be found. Such a remedy will be less difficult than the elaborate schemes which those who believe in trusts advocate in order to remove admitted abuses in other directions. The menace of mere mass of capital is at the most a cause of temporary monopoly, and its potency can be destroyed by depriving the trusts of their favorite method of "sand-bagging" competitors.

The final reason for the belief that combinations must ultimately prevail is found in the character of modern competition in those industries which require heavy investments of fixed capital. Under such conditions the difficulty of withdrawing specialized investments and the losses that are entailed by a suspension of production, make competition so intense that prices may be forced far below a profitable level without decreasing the output; and industrial depression inevitably follows. For such constant fluctuations in prices combination is considered the natural and inevitable remedy. Some writers allege, furthermore, that it "is not possible to have competition without competitors, and, if there be competitors, one must prevail," so that monopoly "is the inevitable fruit of competition."

The socialist who reads some of these arguments must feel that at last many of the criticisms which he has long urged against competition have been accepted by economists of the orthodox type. Certainly, few stronger indictments of the competitive régime have been formulated by socialistic critics of the existing social order. Thus the believers in trusts tell us that "individualism and the competi-

tive system have run their course;" that "the competitive system of industry is fast passing away;" that competition is "inadequate and wasteful," resulting in "general depression" and "industrial loss;" that the competitive régime leads to warfare that is first "intense," then "destructive," then "self-destructive;" that competition is not the "life," but "the death of trade" and "a destroying force to those engaged in it," so that it is termed "business committing suicide." Professor Ely remarks, justly enough, that such contentions are "a virtual surrender to the theory of socialism." In any event, the reader will perceive that it is idle for economists who hold these views to imagine that their theories do not lead to the conclusion that competition is impossible and permanent monopoly inevitable in the industries to which the discussion relates.

In continuation of this line of argument, it is said that trusts are beneficial, because they can "exercise a rational control over industry," and "adjust production to consumption." Thus it is believed that commercial crises can be prevented, or, at least, that their worst effects can be avoided. But such arguments overlook the facts that a restriction placed upon production by a trust, especially if this is sufficient to raise prices above the competitive rate, may react injuriously upon other trades; and that monopoly profits, accruing to a small body of capitalists for a long period of time, must constitute a tax upon the body of the people that will affect the distribution of wealth in such a way as to reduce the consuming power of the masses. A reduction in purchasing power thus produced would render excessive the existing investments in staple industries, and produce crises in precisely the manner described by Rodbertus and Marx. It remains to be seen how our own trusts will deal with the almost inevitable reaction from the intense speculative activity of recent years in the United States. If trusts are unable to destroy the competition that is now disturbing the serenity of their managers, and must meet with continual interference from "interlopers," it may turn out that combinations professing ability to secure large profits on excessive capitalization are such a tempting mark for rival capital that

our new remedy for industrial depression will merely intensify the evils which it was designed to cure.

Not only is it doubtful whether monopoly is a wise method of regulating industry, but it is certain that the evils of competition are greatly exaggerated in some cases, while in others they are due to unhealthful conditions for which an interference with industrial freedom is responsible. Mention has already been made of the distilling industry, which has served as a typical example of the evils of competition and the benefits of combination. Here all will admit that excessive investment was due to the unwise action of congress in changing the rate of taxation in such a manner as to benefit the distillers, and to lax enforcement of the revenue laws, which enabled those who evaded the exciseman to realize a profit of several hundred per cent. In this case, depression was not due to mere competition; and, moreover, the formation of pools, and finally a trust, served merely to call more capital into the industry and to intensify the evils.

In many other industries where trusts have been formed, the excessive investment of which writers complain was caused by the undue stimulus given by high protective duties and by the restriction of foreign competition. Upon over-investments caused by increases in the tariff, enough has been said in a previous paragraph; but the second topic requires further explanation. The iron and steel industries are the best illustration of the periodic fluctuations of prices, of which the believers in trusts complain; and Professor Taussig has recently demonstrated that these phenomena are greatly intensified by the operation of our tariff. He shows that in times of rising prices the restriction of importation has thrown upon domestic producers nearly the whole work of supplying the expanding market. Since new plants cannot be erected in a short time, prices increase enormously before domestic production equals the demand. These high prices cause excessive investment, and hasten a reaction which results in a consequent period of depression. During the recent "boom" in the iron markets of the world, English prices rose from $9.80 to $16.70 per ton for one grade of pig iron, and from $11.70 to $18.60 for another, an increase of 70 per cent for

the first kind and 59 per cent for the second. At the same time American prices rose from $10.00 to $25.00 per ton, an increase of 150 per cent, so that the absence of foreign competition made the fluctuations more than twice as great as they were in the English market. This, he adds, "is but an illustration of the simple principle that, the wider the range of the sources of supply, the greater the steadiness of prices." When Mr. Carnegie complains, therefore, of the alternating periods of expansion and depression that beset the iron industry, he merely emphasizes the connection between our protective tariff and the intensification of the causes that are alleged to produce trusts. Since the range of our protected industries is so great, the importance of the considerations just presented can hardly be overestimated. Competition is restricted by protective duties in most of the industries where combinations are formed; these duties increase the severity, and perhaps the frequency, of the fluctuations from which business suffers; then trusts, a further restriction of freedom, are advocated as a remedy for the ills caused by the initial interference with individual enterprise; and, finally, in order to regulate the trusts, an elaborate system of public supervision is proposed. Would it not be well to make a genuine trial of competition before condemning it for producing evils which are greatly increased by governmental interference with industrial freedom?

Competition cannot be proved a failure until it is given a trial. The evils from which many economists would seek refuge in industrial combination are greatly increased by unwise laws which have now outlived any usefulness that originally they may have possessed. If unhealthful conditions produced by our own interference with the course of business are ever removed, competition will probably develop no evils which could not be borne, as vastly preferable to monopoly, public or private. Indeed, even as things are, the shortcomings of the competitive system are exaggerated; and attempted monopoly is more likely in the end to increase, rather than mitigate, those periodic fluctuations from which industry suffers.

Monopoly is not a pleasant word, and believers in the wasteful and destructive character of competition prefer to speak of trusts as combinations; or, when they use the term monopoly, hasten to explain that this does not imply the absence of all competition. Thus it is said that either actual or potential competition will oblige the trusts to share with the public the savings arising from consolidation, and will protect the consumer from serious injury. Since this argument has been allowed hitherto to pass without serious criticism, the reader is asked to give it a moment's consideration.

When Professor Clark says that the actual investment of new capital is not always necessary in order to restrain the power of a combination to raise prices, because the mere possibility of rivals entering the field may suffice, his argument is not inconsistent or absurd, because he does not believe that a monopoly is a more efficient agent of production than a large independent concern, or that the competitive régime is necessarily destructive and suicidal. And, when he shows that this "potential" competition of new capital can be made more effective by abolishing railroad discriminations and discriminating prices, he makes a distinct contribution to the discussion of the trust problem. But no such argument can come, without manifest inconsistency, from economists who believe that a trust is superior to independent companies. The gulf between permanent monopoly and competition cannot be bridged, even by appealing to such a subtle agency as potential competition.

In the first place, competition, actual or potential, could not distribute among consumers more than the most infinitesimal share of the alleged economies of monopoly. The reader will remember that the advocates of combination consider that it is proved that a single company can produce and market commodities at a much lower cost than independent concerns. If this be true, we may assume that, if the lowest price at which an independent company can afford to sell a commodity be one dollar, a combination can afford to sell for still less, say eighty cents, and that the difference of twenty cents represents the savings

effected by monopoly. Now it is evident that competition can never, except for relatively short periods when the market is overstocked, reduce the price below one dollar, and that producers will never enter the field unless they hope to be able to secure at least these figures. A monopoly, therefore, can maintain the price at ninety nine and nine tenths cents without inviting competition; and the public cannot hope to secure more than the most insignificant fraction of the savings due to consolidation. Competition, manifestly, can do no more than prevent prices from rising as high as one dollar. Competitors might, at the outset, enter the industry under a misapprehension of the situation; but it would soon be demonstrated that a price just under one dollar would make competition hopeless. If, moreover, as is alleged, mere mass of capital tends to deter competition until prices are raised somewhat above the competitive point, this argument becomes still stronger; and it would seem that the monopoly might charge even one dollar without holding out sufficient inducements to possible rivals. Thus the whole saving, and possibly something more, would go to the combination.

Secondly, even if competition could hold monopolistic power in check, the remedy would be wasteful and uneconomic, and would mark a return to the very evils which combination is supposed to cure. The argument for monopoly is based upon the claim that competition is wasteful, destructive, and productive of all the evils in the calendar. To remedy the evils of competition, it is proposed to resort to combination: then, to cure the wrongs of monopoly, it is argued that we can return to competition. Indeed, the evils of renewed competition after monopoly has once been established are more intense, since the chances are that the high profits of the combination will call too much capital into the field; so that the last state of the industry that has been regulated "rationally" and "scientifically" by a single company will be worse than the first. Moreover, if combination possesses all the advantages that are claimed for it, wise public policy would necessitate the adoption of some method of preventing waste from the useless duplica-

tion of manufacturing plants. In public service industries, where all people have become convinced that competition does result disastrously both to producer and consumer, such a restrictive policy has been followed. We no longer think of paralleling existing lines of railroad in order to remedy the evils of extortion, and few cities will in the future permit their streets to be torn up in order to install unnecessary gas or water mains. If, in manufacturing business, consolidation has all, or nearly all, of the advantages which it possesses in the railway, gas, or water industries, public policy will dictate that the evil results of competition be recognized and that future waste of capital in rival establishments be prevented. The arguments in favor of combination suffer from a superabundance of proof that monopoly is more efficient in production and more healthful and rational in seeking for public favor. Those who accept these arguments as correct should carry them to their logical conclusion, and admit that competition is an undesirable remedy for whatever evils monopoly may develop, and that public regulation is the only available method of correction short of socialism.

Finally, it should be remarked that competition is not only an undesirable, but an impossible remedy, if the tendency to monopoly is as strong as represented. If competition with consolidated concerns is hopeless on account of advantages in producing and marketing goods, capital will soon find this out, and refrain from further meddling with enterprises that are foredoomed to failure. If the business world becomes convinced that competition inevitably leads to suicidal warfare when large investments of capital are involved, then public opinion or positive restraints of law will demand that further criminal waste of capital and energy shall cease. Potential competition will lose all of its virtue when the futility and folly of actual competition are once forced upon the convictions of those who possess capital; and, when this happens, the monopolist will soon forget that the danger of rivalry ever existed. If experience ever demonstrates that the arguments of many economists are correct, then we shall be confronted by the grim fact that competition

is dead and that monopoly is inevitable in most important branches of manufacturing industry. Remedy there will be none, save public ownership or public regulation; and past experience raises uncomfortable doubts whether, under the second method, the government or the trusts would be the regulating power.

Most of the questions raised by this survey do not admit of the application of precise methods of determination, and all that can be done is to weigh opposing forces and form a rough estimate, based upon general impressions oftener than exact measurement, of the relative strength of the advantages and disadvantages of consolidation. While conclusions thus reached fall far short of certainty, and prediction is dangerous, this is due to the fact that data for a more exact investigation are denied to economists, who can, at the best, secure but occasional glimpses into the inner workings of great business corporations or draw what inferences seem warranted by the facts that come to the attention of the public. This examination of the recent drift of opinion concerning trusts would seem to have established only two conclusions: first, it will be wise to maintain a position of skepticism concerning the alleged advantages of combinations; and, secondly, it is very important to notice that the alleged tendency to permanent monopoly is irreconcilable with the continuation of anything that properly can be called competition.

If we adopt the conclusion that it is improbable that trusts are caused by superior efficiency in production, we are not, of course, without assignable reasons adequate to explain the movement towards consolidation in the United States. Control over limited supplies of natural resources is the strength of some combinations; railway discriminations, patent rights, and the shelter of protective duties have given material comfort and support to others. The opportunity to secure fancy prices for manufacturing plants, which could then be capitalized at still higher figures for the profit of the promoter and financier, is another explanation of vast importance. With so many premiums offered for combinations, the only cause for wonder is that any industries have

escaped consolidation. Finally, the losses that competition often entails, which have been made worse by unwise laws, have furnished a pretext of no little plausibility for attempts to form monopolies. It is at this point that the arguments in favor of trusts possess most weight.

Yet, with all the strength that the movement towards combination has acquired, competition has always vexed the would be monopolist, and is especially active at the present moment. As this is written, one trust is already confronted by fourteen independent companies, while another rival enterprise with a capital of $1,000,000 is in process of formation. Another combination owning 290 mills was, in October, confronted by independent companies operating seventy four mills; and in December a new concern with a capital of $5,000,000 was formed. Almost every day brings word of the appearance of new competitors for various trusts, and that the revival of competition may be considered a general movement. Some of the independent enterprises may have been started with the purpose of selling out to the trusts; but, if combinations have the superior efficiency that is claimed for them, they are under no obligation to purchase, and the investors in rival concerns would be taking inconceivable risks if competition were really useless. Trusts purchase rival concerns because competition from such companies is dangerous, and not hopeless; and the revival of independent enterprise is a reason for believing that the business world has not accepted the theory that a combination possesses material advantages over separate companies of a large size. Experience may yet demonstrate that the attempt to "regulate" industry by consolidated enterprise is the surest method of producing over investment and depression.

If one concedes that competition is attended with real evils, he is admitting nothing that economists have not known for a long time; and, if it is denied that combination is a good, or even possible, remedy for the ills from which we occasionally suffer, all hope of escape does not disappear. The growth of fixed capital has undoubtedly introduced into industry a disturbing element, productive sometimes of fluc-

tuating prices and excessive investments of capital in certain directions. The situation can be improved by the repeal of unwise laws that intensify whatever unhealthful tendencies competition may have; and, beyond that, relief can be found in measures that will raise business management to a higher plane. The moral and legal responsibility of our captains of industry must be made commensurate with the enormous powers that they wield; and the same moral restraints to which, in the last analysis, even believers in combination appeal, would prove a solvent of the very ills which monopoly is supposed to remedy. Then sound judgment can be fostered by the further development of industrial statistics; and, finally, the substitution of a moderate policy in the place of monopoly hunger, would be more helpful than all else. It may be found, in the long run, that a willingness to allow one's neighbors to live not only possesses more solid advantages than the "economies of combination," but is the only basis upon which private ownership and control of industry can continue. As corporate enterprises in America grow older, each company may cease to be dominated by a few men; and the management may come to represent the average opinion of the stockholders. Such conditions would probably favor the development of a "live and let live" policy. In any event, it will prove easier to impress upon independent business firms the saving grace of moderation than to persuade the monopolist to exercise his powers in a wise and benevolent manner. Good despots there have been, undoubtedly; but we have had no experience with human nature that goes to prove that autocratic control is generally safer in industry than in politics.

TRUSTS AND PRICES.

BY I. A. HOURWICH.

[Isaac A. Hourwich, statistician; born Wilno, Russia, April 27, 1860; his life has been devoted almost entirely to statistics, and for the past fifteen years he has done much of the most important statistical work for the United States government, and is statistical expert for the bureau of the census; he has also written many articles on copper, gold, silver, lead, and zinc mining, and is author of The Economics of the Russian Village.]

We propose to consider in the following pages the effect of combination on the prices of raw material and finished products. The United States industrial commission concludes, in its review of evidence on the subject of combinations, that the latter are in a position to buy their raw material cheaper than their competitors. The commission is inclined, however, to minimize the effects of this advantage. It is shown, e. g., that the saving of the sugar trust on this item does not exceed one sixteenth of a cent per pound; it appears, however, from the testimony, cited further, that if the competitors of the trust find it "difficult to secure a customer, they will cut the price perhaps one sixteenth of a cent per pound. One or two of the chief competitors seem to be forced to put their prices quite frequently at one sixteenth of a cent below that of the American Sugar Refining company." It would follow that this saving of "not more than one sixteenth of a cent per pound" would enable the American Sugar Refining company to meet the cut and still retain the former advantage over its competitors. The difference is, accordingly, one not to be treated as a negligible quantity.

The figures published on the subject of the prices of crude materials by the commission relate only to the oil combination and have been furnished by Mr. Archbold, vice-president of the Standard Oil company, and Mr. Boyle, editor of the Oil City Derrick, a witness friendly to the company. The tables confine themselves to Pennsylvania oil, which is a high grade product, and give the total amount of crude oil produced annually from 1860 to 1898, the total annual valuation

of the product, the number of wells drilled by decennial periods and the estimated cost per well, from all of which the sum of $263,968,413.75 is obtained "as the profits of the producing business for the last thirty nine years, or an average of $6,768,420.86 per year." The result appears to be quite satisfactory, compared with the annual valuation of the product, which averaged, for the period from 1870 to 1890, in round numbers $20,000,000, and from 1890 to 1898, about $28,000,000.

These results are obtained, however, by combining the early period of oil production, when prices were generally high, with the later years, following the organization of the oil combination, which were marked by low prices of crude oil. Whether this was a mere coincidence, or there was a casual connection between the combination and low prices, can be ascertained only by treating each period separately. An element of uncertainty in estimates of this sort is the landed interest, which has varied, since the beginning of oil production, from one half to one eighth of the output. Mr. Boyle's calculation is made upon the basis of an average rental of one fourth for the whole period 1860–1898; Mr. Archbold

	1860–69	1870–79	1880–89	1890–98
I. Averages per well:				
Output, bbls.	5,589	5,427	7,548	6,819
Value	$22,228.00	$10,395.00	$6,457.00	$5,886.00
Cost:				
Drilling	4,000.00	3,000.00	2,000.00	2,000.00
Lifting, 25c. per bbl.	1,397.00	1,357.00	1,887.00	1,705.00
Land interest, 25 per ct.	5,557.00	2,599.00	1,619.00	1,472.00
Total cost	$10,954.00	$6,956.00	$5,506.00	$5,177.00
Profit	11,274.00	3,439.00	951.00	715.00
II. Averages per bbl:				
Price	$3.98	$1.92	$0.86	$0.87
Land interest.	$0.99	$0.48	$0.21	$0.22
Cost of production.	.96	.81	.52	.54
Total cost	$1.95	$1.29	$0.73	$0.76
Profit.	2.03	.63	.13	.11

adopts the present rental of one eighth throughout the period. The tendency of this assumption is to give the total an appearance more favorable to the oil producer.

As totals do not lend themselves to comparison, the figures must be reduced to averages. We first take the tables furnished by Mr. Boyle and calculate from them the averages per well drilled and per barrel of crude oil.

In this calculation the bonus, or rental paid for holding the ground, is not considered at all. Mr. Boyle concedes that "it operates against the profits;" he concedes also that it is necessary to pay this bonus in order to pursue the business, but he thinks that "the lease is speculative" and should therefore not enter into the cost of operating.

Granting, for the sake of the argument, the contention to be correct, it appears nevertheless that within the last two decades, i. e., since the organization of the oil combination, the average profits of the producer have been reduced from $3,439 to $715 per well, or from 63 cents to 11 cents per barrel. The average price has for the last two decades remained constant, as well as the average cost of operating; that is to say, in the long run, the fluctuations within each decade, extreme as they were, affected neither the average price, nor the average cost. This stability points to an equalization of supply and demand, when taken for periods of sufficient length. The inference is sustained by a comparison of the average annual production with the total stocks on hand before and after the organization of the trust. In the following table the year 1882, in which the trust was organized, is excluded and the averages are taken by eight year periods.

Period.	Average Annual Production.		Average Stocks.		Average price.
	1000 bbls.	Percentage of increase over preceding period.	1000 bbls.	Percentage of annual production.	
1874-81	14,307	..	8,660	.60	$1.40
1883-90	23,448	.64	25,832	1.10	.86
1891-98	32,894	.40	11,029	.33	.86

During the first period following the organization of the trust the production of crude oil increased by 64 per cent as compared with the period next preceding, which resulted in an increase of the stocks slightly above the amount of the annual output. The oil combination justly claims the credit for having brought American oil into every nook of the world;

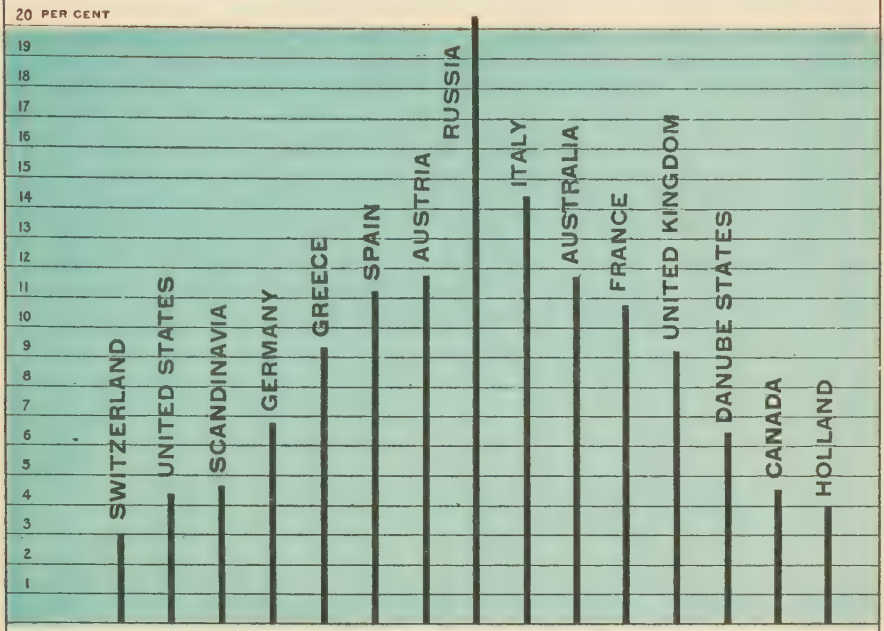
in view of this fact an increase of the output by about three fifths, while the population of the United States increased by one fourth, could not be termed overproduction. During the next eight year period, however, the average annual production increased only by 40 per cent, whereas the population of the United States, according to the twelfth census returns, increased by about one fifth; at the same time the average stocks of oil were reduced to 33 per cent of the annual production, which is equal to the output of four months; still this contraction of the output had no effect on the price. There is no evidence of either overproduction, or reduction of cost of operating. But the price of crude oil was during these years made by the trust,—this was admitted by its representatives who testified before the industrial commission. There is no escape from the conclusion that the fall of nearly 80 per cent in the profits per well must have come from the efforts of the trust to keep the price of crude oil down.

The average profits per well, taken for an eight year period, do not tell the whole story, however, since a well becomes dry, as a rule in about six months. To form a better idea of the condition of the oil producer, we shall compare the average cost of operating per barrel with the prices ruling for shorter periods. Taking the average monthly prices up to 1894 and the daily prices since 1895, as given in the report of the industrial commission, and converting gallons into barrels (42 gallons = 1 bbl.), we obtain the following table:

Date.	Averages per barrel.				Net loss
	Price.	Rental (=¼).	Drilling and lifting	Total cost.	
July, 1884	$0.63	$0.16	$0.52	$0.68	$0.05
June to October, 1886:					
Highest	.67	.17	.52	.69	.02
Lowest	.62	.15	.52	.67	.05
February to September, 1887:					
Highest	.67	.17	.52	.69	.02
Lowest	.59	.15	.52	.67	.08
December, 1890	.67	.17	.52	.69	.02
April, 1891, to October, 1893:					
Highest	.71	.18	.54	.72	.01
Lowest	.51	.13	.54	.67	.16
August, 1897, to February, 1898:					
Highest	.71	.18	.54	.72	.01
Lowest	.63	.16	.54	.70	.07

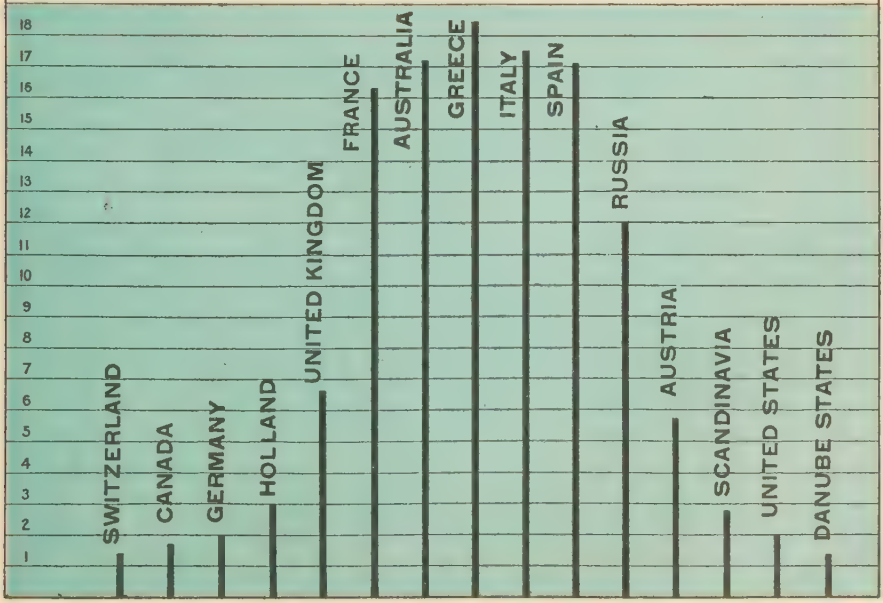
TAXES AND EARNINGS COMPARED

PERCENTAGE OF FORMER TO LATTER



DEBT AND WEALTH COMPARED

PERCENTAGE OF DEBT, AFTER DEDUCTING STATE RAILWAYS, TO WEALTH



Thus, relying upon the figures furnished by the editor of the Oil City Derrick, we arrive at the conclusion that within nine years out of seventeen since the organization of the trust, the average monthly price of crude oil fell at times below the average cost of operating; such a condition continued in 1886 for five months, in 1887 for eight months, and in 1891–93 for two years and seven months in succession. Even amidst the prosperity of 1897 and 1898 the price of crude oil was for more than half a year below the cost of operating.

In the preceding table the rental is figured at one fourth of the gross product, as estimated by Mr. Boyle; the result is not materially changed, however, if Mr. Archbold's estimate is accepted, as shown by the following table, where the rental is figured at one eighth:

Date.	Averages per barrel.			Net loss (cost = 54 cents).
	Price.	Rental (= ⅛).	Realized.	
September to December, 1891:				
Highest	$0.60	$0.07	$0.53	$0.01
Lowest	.58	.07	.51	.03
February, 1892, to February, 1893:				
Highest	.60	.07	.53	.01
Lowest	.51	.06	.45	.09
May to August, 1893:				
Highest	.59	.07	.52	.02
Lowest	.58	.07	.51	.03

Thus, according to the showing made by a vice president of the Standard Oil company, there were within the space of two years, from September, 1891, to August, 1893 (both inclusive), just three months when the average price of crude oil repaid the cost of operating, viz., January, 1892, and March and April, 1893; during the rest of the time the price was from 1 to 9 cents per barrel below the cost of operating. The question naturally arises, why did the producer supply the market for two years in succession at prices which did not cover the cost of production? The answer is given by Mr. James W. Lee, of Pittsburg, Pa., president of three independent oil companies, and attorney for the fourth. The following is taken from his testimony before the industrial commission:

Q. Perhaps you might explain to the commission why the production could keep up under these circumstances. A. It is a speculative business. One man would come in and drill awhile, get a thousand barrel well and grow rich. The hope of that sort of thing led men to put a great deal of money into drilling these wells. They all hoped to get large wells; they did not find them. More money has been put into the business in ten years than has been taken out of it. Still people make money often, though prices are low. There are wells that run as high as 15,000 barrels a day. Of course a man who has a well of that kind will make a large amount of money.

Thus, average prices do not repay the average cost of production, which is considered by the economist; a speculator is not guided, however, by school books on political economy, he figures upon exceptional gains and the improvement of prices. The policy of the trust has largely contributed towards making the oil business a lottery. Says Professor Jenks, the expert of the industrial commission:

"The independent oil producers have said much about the arbitrary acts of the Standard in fixing the prices of crude oil. The charge of arbitrary action is conceded by the Standard to be true in special cases. That organization has at times in special localities raised the price of crude oil till it has ruined a rival pipe line, which was also a buyer, and then, on the absorption of the line, has lowered it again to the great disadvantage of the oil well owners. At times, too, where it has been almost the sole buyer of crude oil, it has kept prices so low that well owners were practically compelled to sell out to it; then it has raised the price."

A few instances of price fluctuations are quoted here from the tables compiled by Professor Jenks. From January to July, 1884, the price per gallon of crude oil at Oil City fell from 2.65 cents to 1.51 cents; from January to October, 1885, it went up again from 1.69 to 2.50 cents; towards the month of August of the next year it fell again to 1.48 cents. From November, 1889, to December, 1890, the price fell from 2.58 to 1.60 cents. From November, 1894, to April, 1895, it rose from 1.97 cents to 4.22 cents. From January to December,

1898, the price went up from 1.50 cents to 2.79 cents, and towards December of the next year it rose as high as 4.13 cents. The average price for 1880–89 is obtained by computation at 2.04 cents per gallon, and that for 1890–99, at 2.19 cents. Thus the fluctuations within a few months ran at times as high as 90 per cent above the average price. This would leave little room for sound business calculations, since it was a mere matter of chance with the oil producer, in undertaking to drill a well, whether the price of crude oil would be doubled or cut by one half.

It is the opinion of Professor Jenks that arbitrary interference with prices by the trust was limited to special localities and on the whole "produced no great effect on the entire market. . . . The greater general changes seem to have been due to the changes in supply brought about by other causes." His figures, however, justify a different conclusion. To confine ourselves to the period following after the organization of the Standard Oil company, the depression in 1891 to 1893 is ascribed to the discovery of a new field in Pennsylvania with some of the largest wells ever known in this country. Still referring to the tables, we find that the stocks of Pennsylvania oil in 1892 were one half those in 1882, and yet the average price in 1882 was 78½ cents, while in 1892 it was 55½ cents. In 1893 the stocks were only 5 per cent above those in 1898, and the production was 1 per cent less than in 1898, and yet the price in the latter year was 91⅛ cents, while in 1893 it was 64 cents. In 1895, "the market was largely speculative for a time," and it was claimed "that the advance in crude oil was largely arbitrary" and intended to overthrow the independent refiners; the contention is not disputed by Professor Jenks. The decline in 1897 is ascribed to the opening of the West Virginia fields; yet the annual output was affected only to the extent of 1,200,000 bbls., an increase of 3½ per cent,—and the stocks on hand were increased by a like quantity; so whereas in the preceding year they had been equal to the output of fourteen weeks, in 1897 they reached the output of sixteen weeks; this could hardly be spoken of as oversupply of the market, and yet the price fell from $1.19 to 78⅜ cents per barrel. These are all the cases cited

by Professor Jenks in support of the proposition that the greater general changes in prices have been due to changes in supply, and from these cases, at least, it does not appear that supply and demand had any part in determining the price within the periods referred to.

To sum up, the fact is established by the testimony on behalf of the Standard Oil company that the trust at times depressed the price of crude oil below the cost of production; in so far as this was done only in special localities it added to the profits of the trust, without benefiting its competitors. This answers the familiar argument that no special advantage accrues to an industrial combination from reducing the cost of raw material, since the benefit would be shared by the independent producers alike.

We come next to the price of products made by trusts. The complaint against the trusts is that they have raised the prices of manufactured products and introduced the practice of local discrimination to kill competition. The answer is a "general denial."

The industrial commission made a thorough study of prices, confining itself to but a few articles. The civic federation of Chicago, in 1899, sent out interrogatories to a number of persons who were thought competent to speak on the subject. The answers received were tabulated by Professor David Kinley, of the University of Illinois; the results are reproduced in the following table:

Prices after consolidation.	Number of answers.
Increased	452
Decreased	24
No change reported	15
Fluctuating	15
Total	506

It is claimed in justification of the general rise of prices of finished products, that it is due to a rise in the prices of raw materials; thus, e.g., the rise in the price of tinplate is explained by the rise in the prices of steel and tin. While the explanation may hold good in many cases, it merely shifts the blame from one trust to another, since the production of raw

materials is also largely controlled by trusts; the fact still remains that about nine tenths of trust made articles increased in price. The exhaustive study made by Professor Jenks for a few selected articles leaves no doubt that the margin between the selling price and cost of material has been raised by combination. If the conditions were exceptional in these cases, it would have been easy for the combined producers of other articles to demonstrate it before the commission by figures drawn from their books. No such testimony has been offered and the conclusions of Professor Jenks stand uncontroverted.

On the subject of local discriminations an abundance of figures is presented by the industrial commission. There is, in the first place, a table of monthly prices of standard white illuminating oils at New York, Chicago, and Cincinnati for the fifteen year period 1885–99; the table is given with the testimony of Mr. Archbold, and is thus above suspicion of prejudice against the Standard Oil company.

An examination of the table shows that, as a rule, the price at Cincinnati is lower than at Chicago, and at Chicago lower than at New York, which must be accounted for by some permanent reason. Still it appears that on many occasions the situation was reversed.

Thus, oil sold cheaper at New York than at Chicago: in November, 1887, in February and August, 1888; from May to July, 1889, and in November of the same year; from March to June, 1890, and in November of the same year; in September 1891, and from November of the same year to January, 1892; in January, May, and October, 1893, and from December of the same year to February, 1894; in September of the same year.

The New York price fell below the price at Cincinnati: in September and October, 1888; from August to October, 1889, and in December of the same year; in February and March, 1893; in March, 1894, in May and June and from August to October, 1895.

The Chicago price was below that at Cincinnati: in May, June, and September, 1892; from April to October, 1895; in July, August and October, 1897; and in March, 1898. These

fluctuations cannot be adequately accounted for by any other agency but local fluctuations of supply and demand.

In addition to this study of three important markets, extending over a number of years, the industrial commission has also a contemporaneous survey of over fifteen hundred local markets, representing every state in the union and coming from towns of all varieties and size and characteristics.

The information was received in reply to a schedule of inquiries which had been addressed to retail grocers throughout the United States. Four articles were selected, because of the fairly uniform quality of the product—illuminating oil, sugar, salt, and Royal baking powder, and the grocers were requested to give the prices paid on February 15, 1901, or on the nearest day when purchases of these articles had been made. Taking illuminating oil, variation in price may proceed from one of the following causes: (1) difference in cost of production at different sources of supply, (2) freight rates, (3) cost of distribution, which is likely to be in inverse ratio to the quantity sold in any given market, (4) cartage, which is presumably higher in a great city like New York, than in a small hamlet. The following table is constructed from the data of the commission, with a view to eliminating the first two causes of variation; all cities enumerated in the table are supplied by the Standard Oil company from the same refinery, located at Whiting, Ind.; the last column shows the net price, after deducting freight charges; the cities are arranged in the order of their population.

It is evident from this table that neither the size of the market nor the cost of cartage offers a satisfactory explanation of the variations in the net price of oil. Here are two cities, Indianapolis and Kansas City, substantially alike in population, and yet the price at the latter is 36 per cent above that at the former. Little Rock, Ark., and Dubuque, Iowa, have also substantially the same population, and yet the price at Little Rock is 1.55 cents per gallon above that at Dubuque. Vicksburg, Miss., and Cheyenne, Wyo., are also equal in rank, and yet there is a difference of 3.1 cents per gallon, or nearly 40 per cent.

Cities.	Population, 1900.	Gross price per gallon.	Freight per gallon.	Net price per gallon.
San Francisco, Cal	342,782	$0.13	$0.05	$0.08
Louisville, Ky	204,731	.07	.00.74	.06.26
Indianapolis, Ind	169,164	.05.5	.00.5	.05
Kansas City, Mo	163,752	.08.5	.01.7	.06.8
St. Paul, Minn	163,065	.08	.01.3	.06.7
Denver, Col	133,859	.16	.04.9	.11.1
Portland, Oregon	90,426	.14	.05	.09
Seattle, Wash	80,671	.13.5	.05	.08.5
Des Moines, Iowa	62,139	.08	.01.5	.06.5
Lincoln, Neb	40,169	.10	.01.9	.08.1
Little Rock, Ark	38,307	.11.5	.01.9	.09.6
Dubuque, Iowa	36,297	.09	.00.95	.08.05
Madison, Wis	19,164	.08	.00.8	.07.2
Atchison, Kan	15,729	.09.5	.01.7	.07.8
Vicksburg, Miss	14,834	.09.5	.01.5	.08
Cheyenne, Wyo	14,087	.16	.04.9	.11.1
Sioux Falls, S. Dak	10,266	.10.5	.01.8	.08.7
Fargo, N. Dak	9,589	.12.5	.03	.09.5

On the other hand, the price at Denver is precisely the same as Cheyenne, Wyo., though the population of the former is nearly ten times as large as that of the latter. San Francisco and Vicksburg, Miss., are charged the same price, though the former has a population twenty three times as large as the latter. Indianapolis pays the lowest price; if the increase in the size of the city carries with it increased cost of distribution, then there are at least thirteen cities, beginning with Denver, where the price ought to be lower than at Indianapolis; if, on the contrary, the larger the market, the lower are the selling expenses, then one would expect the price at San Francisco to be the lowest, whereas in reality it is 60 per cent above the minimum. The difference in population and size between Indianapolis and Denver does not seem to be such as to account for the fact that the net price at Denver is more than double what it is at Indianapolis, while the price actually paid is nearly treble.

Let us now take at random a few instances within the same states. In Arkansas the highest price, 15 cents per gallon, is charged at Hot Springs, with a population of 9,973, and the lowest, 11 cents per gallon, at Helena, with a population of 5,550. The former, with a population nearly twice as large as the latter, ought to have the advantage coming from larger sales, while both are so small in size that there can be

no material difference in cartage. Oil is supplied in both cases by the Waters-Pierce Oil company, a branch of the Standard. The freight rate from Whiting to Little Rock, Ark., is 1.9 cents per gallon; the local difference in freight between Hot Springs and Helena cannot explain a difference in the price as high as 4 cents.

For New Jersey we have the following figures:

City.	Population.	Gross price per gallon.
Hoboken	59,364	$0.07
Jersey City	206,433	.08
Bayonne	32,722	.08
Newark	246,070	.08½

Why is the price not affected by the distance between Jersey City and Bayonne, whereas the same distance between Jersey City and Hoboken results in a difference of 1 cent on the price, and the greater distance between Jersey City and Newark adds only ½ cent? Why is the difference between the price at Hoboken and that at Newark as high as 1½ cents per gallon, exceeding the freight from Buffalo to points in New Hampshire or Vermont? These are queries for which neither the cost of cartage nor the size of the market seems to offer an adequate answer.

Taking the state of New York, at Buffalo, which is one of the great distributing centers, the price is 8 cents, whereas at Cohoes, a town with a population of 23,910, a few miles from Albany, it is 6½ cents. Albany is supplied from Buffalo, the freight rate is ¾ cent per gallon. Thus the reduction in favor of Cohoes amounts to 2¼ cents per gallon, or to more than 25 per cent of the price at Buffalo. It does not seem clear why the cost of distributing oil within the city of Buffalo should be as high as 2¼ cents per gallon, while the variation between Jersey City and Newark is only ½ cent.

In Virginia, the price at Norfolk, a seaport with a population of 46,624, is 9 cents, while at Winchester, an inland town with a population of 5,161, it is 6 cents per gallon. A difference of 3 cents could not well be accounted for by the cost of cartage within the city of Norfolk, when it is con-

sidered that the highest price in New York City, 9 cents, is only 2 cents in excess of the price at Rensselaerville, Rensselaer county, which, like Winchester, enjoys the privileges of the "most favored" towns. The examples might be increased at pleasure.

The reason for these variations is evidently to be sought in local fluctuations of supply and demand. This explanation is directly corroborated by the testimony of Mr. Monnett, former attorney general of Ohio. He submitted a table showing the Standard Oil company's prices of kerosene from tank wagons on the same day in thirty towns in Michigan and Ohio, of which there were twelve where the Standard Oil company had competition, and eighteen where it had the local market all to itself. In the former towns the price varied from $4\frac{3}{4}$ to $6\frac{1}{2}$ cents per gallon, whereas in the latter it stood at from $7\frac{3}{4}$ to $8\frac{3}{4}$ cents.

An examination of the prices of Royal baking powder would simply duplicate what has been stated above. It is needless to inquire into the figures relating to sugar and salt, since it has been candidly admitted before the commission on behalf of the American Sugar Refining company and the National Salt company that local discriminations are practiced to meet competition. The foregoing data seem to indicate that the prices charged by trusts for their products have little or no relation to the costs of production and distribution.

Where the combination controls the bulk of the output, competition as a rule will be only local. Within the domain of monopoly the level of prices will be determined by the mathematical rule of maximum and minimum; the price may be high or low, according to whether greater net results could be secured by smaller sales at higher prices, or by larger sales at lower prices. In markets of equal size, it would seem, the net price (i.e., the selling price less the cost of transportation) would tend towards uniformity. Within the competitive field prices ought to be regulated, in the long run, by cost of production. The combination, however, enters as a disturbing factor. On the one hand, monopoly profits secured in some markets enable it to cut the prices below the normal

competitive level in others. On the other hand, to recoup for the loss in the competitive market, the price may be raised even above the normal monopoly level where the market is controlled by the combination. The raise may perhaps reduce consumption; still a part of the supply would probably have to be diverted, in any event, from the non-competitive market, in order promptly to meet the increased demand at abnormally low prices in the competitive market; so the elements of the calculation being changed, the maximum returns would be produced by a new price.

Thus where a combination is in practical control of the output, competition of independent producers will not steady prices, but on the contrary will widen the range of price fluctuations beyond what they would be either under free competition or under unrestrained monopoly.

"TRUSTS" IN THE LIGHT OF CENSUS RETURNS.

BY WILLIAM R. MERRIAM.

[William Rush Merriam, statistician and financier; born Wadham's Mills, Essex county, New York, July, 1849; graduated Racine college, 1871; began his business career as a clerk in the Merchants National bank in St. Paul in 1871, became cashier, 1873, vice-president, 1880, and since 1882 president of that institution; elected member of the Minnesota legislature 1882, and speaker of that body in 1886; governor of Minnesota, 1889–1892; director of United States census, 1898 to 1903.]

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The discussion concerning industrial combinations has been so active, not only through the ordinary channels of the newspaper press and the monthly magazines, but also in lectures, political speeches, and public debates, that I should feel some hesitation in touching upon this topic were it not for the fact that the manufactures division of the census office has prepared some very interesting data concerning this much agitated question. It is a source of regret that many persons, when considering the effect upon society at large of the vast aggregations of capital so common in our day, are quite apt to discuss the subject from a sentimental standpoint and without an adequate knowledge of the facts. To become hysterical over imaginary difficulties, rather than to approach an important social problem from a temperate and unbiased point of view, seems to be a common fault even with a people so practical as the Americans. The arguments advanced from either side of this controversy are entitled, however, to the fullest consideration.

Those immediately concerned in the formation of enormous corporations insist that they are simply the natural evolution of the ordinary commercial life of the nation; that they arise from perfectly natural causes; and are the logical outcome of machinery production, improved transportation facilities, plentiful capital, and of increased competition which has forced the managers of industrial enterprises to reduce the cost of production to the minimum. It is further contended that the expense of the distribution and sale of products

is much less under the industrial combination plan than under the former system, a great saving being effected in the cost of administration and general plan of operation; that such combinations, conducted under a common oversight and control, make it possible to dispense at will with the active use of those plants which, because of their geographical situation, are not best adapted for the production of the articles to be sold. Another advantage arises from the fact that the several processes involved in the production of the article in question, instead of being carried on together in each of a number of independent establishments, may be localized in separate mills. This specialization introduces a uniformity in the operations of each mill which is conducive to economy. It is urgently maintained, in view of all these considerations, that under combinations the wants of the consumer are satisfied at a lower price than under the old competitive plan.

Those who oppose the formation of industrial combinations are very strenuous in their efforts to secure such legislation as will materially restrict the operation and management of these vast corporate enterprises. They maintain that the "captains of industry," who, with their mighty power of concentrating wealth, are constantly extending the field of their operations, are a menace to society, not only in an industrial way, but also from a social standpoint. They declare that these enterprises are veritable monopolies, with the power of compelling the people to pay higher prices for the necessities of life than would obtain under the competitive system; that they stretch out their mailed hands to reach the very sources of government itself, controlling legislatures, congress, the courts, and great civic bodies; in short, that they are an incubus on the whole social structure, endangering the very existence of the republic.

There is no doubt that certain of the industrial combinations do control a large proportion of the output in their various lines of business, and that the conditions of production are such as to give them some advantage over their competitors. Their power of influencing prices is very great, and may at times be used to advance them arbitrarily, or, what is perhaps worse from an economic point of view, actually

reduce them, temporarily, below the cost of production, with a view to driving competitors out of the field. This has been a powerful factor in the development of the industrial combination. Undoubtedly it is a distinct evil. As yet, no adequate remedy has been devised to meet it. In considering this argument, however, it must be remembered that the apparent rise in prices of many of the products controlled by these combinations is the result of increased demand, due to the prosperous condition of the country rather than to any particular advantage afforded by monopoly. The ability to list upon the stock exchange of the country enormous amounts of securities for which there is an insufficient basis of value is another great evil. This invites the unwary and inexperienced to invest in stocks and bonds which have been issued upon a small proportion of actual invested capital. With these lines of popular argument clearly before us, it is interesting to observe the facts which have been developed by census investigation; for, after all, our conclusion regarding these industrial evolutions of our national life should be based upon an unprejudiced study of facts.

The officials of the census office, in order to prevent misconceptions and insure consistency in the plan and system of tabulation, formulated the following definition of the term "industrial combination":

"For the purpose of the census, the rule has been adopted to consider no aggregation of mills an industrial combination, unless it consists of a number of formerly independent mills which have been brought together into one company under a charter obtained for that purpose. We therefore exclude from this category many large establishments comprising a number of mills, which have grown up, not by combination with other mills, but by the erection of new plants or the purchase of old ones."

The word "trust," although it has the sanction of popular usage, was avoided in this definition, because, technically, it applies to only one form of industrial combination; and while this form was at one time prevalent, it has been rendered illegal by act of congress, so that the term has become a mis-

nomer. The above definition is not perhaps broad enough, as it does not recognize a class of corporations known as "holding concerns," which are organized for the purpose of acquiring the stock of other corporations, and do not directly operate plants. Several such corporations are, however, included in the data referred to later on. It may be said in passing that there are a considerable number of independent organizations, created for the purpose of selling goods at uniform prices, of which no cognizance has been taken in this article.

So far as can be ascertained from the data in the census office, the number of these industrial consolidations is 183. They control 2,203 separate plants, scattered throughout the United States, 2,029 being active and 174 idle during the census year. For 56 of the idle plants no returns could be obtained, making the total number of reporting plants 2,147. The 183 combinations extend to almost all lines of industry, producing articles of luxury, materials essential to the upbuilding and growth of the country, and even the very necessities of life. Fully 50 per cent of these combinations were chartered just prior to or during the census year; and it is noteworthy that the epidemic of industrial consolidation, as far as the so-called monopolies are concerned, has been practically confined to the past seven years. It is evident, therefore, that the disease—if it be regarded as such—has spread very rapidly.

Naturally enough, iron and steel, with 69 combinations, heads the list. The number of reporting plants engaged in this industry is 469, and the capital invested, consisting of land, buildings, machinery, tools and implements, and cash and sundries, is valued at $348,000,000. Since the census reports were received last year, there has been a reorganization of certain corporations engaged in the manufacture of iron and steel products, by which a number of them have been merged into the United States Steel corporation. The stock and bonds issued by the constituent combinations up to the time of reorganization are shown below, together with a statement of the securities issued by the United States Steel corporation:

	CAPITAL STOCK AND BONDS ISSUED.			
	Total.	Bonds.	Preferred.	Common.
United States Steel corporation.	$1,005,351,740	$301,000,000	$340,726,670	$363,625,070
Constituent companies.	707,162,740	2,811,000	340,726,670	363,625,070
The Carnegie company	156,800,000	.....	78,400,000	78,400,000
American Bridge company	61,055,600	.....	30,527,800	30,527,800
Lake Superior Consolidated Iron mines	29,425,940	.....	14,712,970	14,712,970
Federal Steel company	99,745,200	.....	53,260,900	46,484,300
American Steel and Wire company of New Jersey	90,000,000	.....	40,000,000	50,000,000
National Tube company	80,000,000	.....	40,000,000	40,000,000
National Steel company	61,811,000	2,811,000	27,000,000	32,000,000
American Sheet Steel company	49,000,000	.....	24,500,000	24,500,000
American Tin Plate company	46,325,000	.....	18,325,000	28,000,000
American Steel Hoop company	33,000,000	.....	14,000,000	19,000,000
Shelby Steel Tube company	.....	.....	.....	.....

It can readily be seen that the amount of securities issued by the steel corporation in return for the property acquired was quite liberal. Iron and steel can fairly be regarded as the predominant industry of the United States. The value of the output during the census year was something like $500,000,000. The steel concerns employed during the year 146,000 wage earners including piece workers, and paid $81,000,000 in wages, to which should be added about 6,000 officials receiving $7,500,000 in salaries. Of the total number of wage earners in the employ of industrial combinations, more than one third were engaged in the production of iron and steel. From these figures the importance of this industry can be readily inferred.

It is a matter of vital interest to wage earners and the public generally to know that 23 combinations are engaged in producing articles of food, their total annual output, $282,000,000, being second in importance to that of the iron and steel industry. The list includes such corporations as the National Biscuit company, the American Sugar Refining company, and the California Fruit Canners' association. The number of reporting plants in this industry is 277, and the capital—by which is meant land, buildings, machinery, tools, implements, cash and sundries—is valued at $247,000,000. There are 29 combinations engaged in the production of beer, liquors, and beverages. The total output is $93,000,000. These products cannot be considered as prime necessities of

life. They are generally regarded, indeed, as mere luxuries. The number of reporting plants is 236, and the capital employed is valued at $120,000,000. A division of combinations interesting to the general public is that of textiles. Seventy two reporting plants engaged in this industry are controlled by 9 of these corporations, and their capital is valued at $92,000,000. Lumber and its allied industries are represented by 18 combinations. There are 65 reporting plants, representing a capital of $25,000,000. Six combinations relate to leather and its finished products. The number of reporting plants is 100, and the capital amounts to $63,000,000. One hundred and nineteen papermaking plants were reported, which were under the control of 8 combinations, and represented a capital of $59,000,000. In the line of chemicals and allied products there are 287 reporting plants, controlled by 19 combinations, and having a capital of $187,000,000. The clay, glass, and stone industry, which includes cement and brick companies, and others of like character, comprises 201 reporting plants, controlled by 17 corporations. The capital is $49,000,000. Under the division of metals and metal products, other than iron and steel, are included the Amalgamated Copper company, a brass company, a shot and lead company, a smelting and refining company, a metal, a lead, and a zinc company—16 combinations, representing 94 reporting plants, with a capital of $120,000,000. The tobacco industry, with 5 combinations, controls 41 reporting plants, with a capital of $16,000,000. Six combinations are interested in the manufacture of vehicles for land transportation. They control 66 reporting plants, which represent a capital of $86,000,000. Their output during the census year was also valued at $86,000,000. In this census classification, 30 combinations, organized for various purposes and operating a total of 120 reporting plants, have been grouped under the head of miscellaneous industries. They include a glue company with 6 plants; a hard rubber company with 3 plants; an ice company with 14 plants; a shipbuilding company with 11 plants; a soda fountain company with 7 plants; a fireworks company with 6 plants; a roofing company with 6 plants; a railway, electric lighting and equipping company with 3 plants;

one electric boat company with 3 plants; and 6 other combinations carrying on various industries, such as the manufacture of carbon, whips, rubber goods, etc. These corporations were reported as employing $45,000,000 of capital in the specified industries.

No statement has here been made of the capital stock issued upon the property represented in the plants and other assets employed in these several classes of industry. The reason for this is that, owing to different methods of tabulation, the capitalization statistics presented by the census office are not comparable, by classes of industry, with the statistics of property. In a number of instances combinations operate plants engaged in different industries. In the tabulation of the statistics of property and other assets, all plants engaged in a given industry are gathered together without regard to the nature of the combinations controlling them, while in tabulating the capitalization statistics each combination has been placed in the group of industries to which it would be assigned according to its product of chief value, and with it have been gathered all the plants over which it exercises control, without regard to the nature of the work carried on by them. The method of treating property involves considerable duplication in the number of combinations, and this the reader may have noticed, as the sum of the combinations enumerated considerably exceeds 183, the actual total number. The capitalization of the industrial combinations—that is, the par value of stocks and bonds actually issued—is shown below by classes of industry:

COMBINATIONS CLASSIFIED BY PRINCIPAL PRODUCTS, WITH NUMBER OF PLANTS AND CAPITALIZATION.

	Number of combinations.	Number of plants.	Capitalization: amount issued.
Iron and steel, and their products	40	489	$784,420,295
Food and allied products	21	277	290,344,200
Chemicals and allied products	14	295	287,651,295
Metals, etc., other than steel	11	113	212,070,600
Liquors and beverages	28	258	248,830,300
Vehicles for land transportation	6	72	199,980,000
Tobacco	4	41	197,184,628
Textiles	8	72	146,458,175
Leather and its finished products	5	108	197,820,200
Paper and printing	7	119	172,467,717
Clay, glass, and stone products	15	203	69,464,358
Lumber and its manufactures	8	59	39,809,400
Miscellaneous industries	16	97	238,699,700
Total	183	2,203	$3,085,200,868

Attention has already been called to the lack of comparability, by industries, between these figures and those for property holdings. The totals for all industries, however, are entirely comparable, and an idea of the relation of capitalization to the property of the combinations may be obtained by a consideration of these totals.

The total property of the 2147 reporting plants controlled by the various combinations, including land, buildings, machinery, tools and implements, cash, bills receivable, etc., etc., is valued at $1,458,522,573, of which $24,717,653 represents the property of the reporting idle plants. The entire capital issued by the 183 combinations which operate these plants is as follows:

Bonds	$ 216,412,759
Preferred stock	1,066,525,963
Common stock	1,802,262,146
Total	$3,085,200,868

To this should be added the capital stock issued by the United States Steel company over and above the capital stock of those of its constituent companies which were included in the census statistics. This additional sum is $484,414,940, comprising $298,189,000 of bonds, $93,112,970 of preferred stock, and the same amount of common stock. This makes a total capitalization of $3,569,615,808. The valuation of the land, buildings, and other assets, upon which this capitalization is based is $1,458,522,573. This figure does not include the value of property owned by two combinations in the United States Steel company which do not receive consideration in the census statistics, but the fact will have to be ignored. It will be noted that the total property value lacks $216,000,000 of equaling the value of the bonds and preferred stock, so that this sum, plus the value of the common stock, a total of $2,018,000,000, seems to represent good will, franchises, and other intangible assets. Probably a good deal of this is what is known as "pure water." The public will be expected to pay more or less interest on this watered stock, but to what extent time alone will determine. In many cases there never will be any interest. In other in-

stances a fair dividend undoubtedly will be paid. The census office did not make any estimate of the value of certain property incidental and necessary to the carrying on of the various industries noted above; for example, there was no way to ascertain the value of mines, steamboats, and railroads owned by some of the larger corporations. Such necessary adjuncts of business should be set off at full value against the common stock. The real value of the various plants seems to be about 41 per cent of the amount of stocks and bonds issued.

While it is within the power of the promoters of consolidation to set their own valuation upon the face of securities, the market value is ultimately determined by the public. It is especially interesting, therefore, to observe the attitude of the public toward the huge volume of securities which has been placed upon the market with all the advantages of exceedingly skillful manipulation. Exclusive of the Standard Oil company and the Pullman Car company, which should be regarded as exceptional, the par value of the preferred and common stocks of 50 "industrials" listed among active or inactive securities on the New York Stock exchange is $2,463,553,708. The market value of these stocks, computed at the prices current December 7, 1901, was $1,506,743,990. It appears, therefore, that the public has promptly discounted the face value of the promises of these leading industrials by the enormous figure of $956,809,718, and that it purchases this class of securities (par $100) at the average price of 61.8. This significant fact indicates that, with the lapse of time and increase of knowledge due to increasing publicity, that part of the problem of industrial combinations which relates to overcapitalization is likely to become less important by reason of the caution of investors. This will have an important bearing on the consolidation of industrial interests in the future. Already so much publicity has been given to the subject of industrial combinations that investors who plunge into this class of securities without due investigation and caution are entitled to little sympathy.

The total industrial combinations employed 23,000 managers, superintendents, clerks, etc., and 399,000 wage earners, including piece workers. They paid out during the census

year, in salaries, $195,000,000, and the value of their entire output was $1,661,000,000. Contrary to the general impression, these great combinations do not control a very large proportion of the industrial output of the country. In 1890 the entire output of manufacturing industry was about $9,000,000,000. The total product of the manufacturing industry for the year 1900 was in round numbers, $13,000,000,000, so that the output of these combinations, although it seems enormous, does not represent much more than one tenth of the total industrial product of the United States.

It is interesting to note the different localities which seem to afford the most advantageous abiding places for these various combinations. There are certain states which apparently offer special attractions as the normal homes of these combinations. We find that 358 plants are located in Pennsylvania, 227 in New York, 225 in Ohio, 163 in Illinois, 123 in Massachusetts, 100 in Indiana, while the rest are scattered through other states. Nearly all are organized under the beneficent laws of the state of New Jersey.

Such an array of statistics may be somewhat dry, but there seems to be no better way of giving a clear idea of the real condition of these industrial enterprises. Unquestionably they constitute a difficult problem in civic control. If they are enabled, by the advantages coming from the concentration of immense wealth and the existence of liberal laws in different states of the union, to secure and maintain a monopolistic control of prices, there can be no doubt that they are harmful, and deserve the attention of the legislative branch of the government. It is clear, however, that these industrial concerns have not been in operation long enough to demonstrate just how far they will prove to be monopolies. Their growth is an evolution in our commercial life, and a few years must elapse before experience will enable us to determine whether they are dangerous, and if so, what the proper remedy will be.

I think it is undeniable that great wealth in the hands of a few men, and especially in the hands of bright and able men, such as these leaders in industry have shown themselves to be, is always more or less dangerous to the state. Even

though they may be men of high character and personal integrity, they will probably hold that efforts to influence by improper inducements the action of legislators and assessors and of men in authority who may, under certain circumstances, have the power to do things adverse to their interests, are permissible, on the principle that the end justifies the means. The political influence of these large aggregations of capital is the chief danger, and the one which will be the hardest to eradicate. It may safely be predicted that there will be some sort of supervision over them sooner or later. This supervision ought not to be such as to interfere with the pursuit of the business for which they were incorporated; but it ought to give their transactions such publicity as will not only protect the investors who buy their securities, but also convey to the great mass of consumers some conception of the profits which arise from the existence of industrial combinations. There can be no doubt that many of the thoughtful men of the country look with much suspicion and anxiety upon the influence being exerted by these vast corporations in the United States. The heads of these institutions are men of experience and wide influence, who stop at hardly anything which is to their own advantage. Many years ago, the late Senator Cushman K. Davis, then a rising young lawyer in St. Paul, delivered a very interesting address to the students of the university of Minnesota, entitled Modern Feudalism. The lecture attracted a great deal of attention, and led to his entering public life as a candidate for governor of the state shortly thereafter. At the present time, Senator Davis's address reads like prophecy. The concluding paragraphs were as follows:

"Feudalism, with its domains, its untaxed lords, their retainers, its exemptions and privileges, made war upon the aspiring spirit of humanity and fell centuries ago with all its feudal grandeur. But its spirit walks the earth to-day and haunts our institutions, in the great corporations with their control of the national highways, their occupation of great domain, their power to tax and to escape taxation, their sorcery to debase most gifted men to the capacity of most splendid slaves, their pollution of the ermine of the judge and

the robe of the senator, their aggregation in one man of wealth so enormous as to make Crœsus seem a pauper.

"The poor fisherman, told of in the Arabian Nights, threw his net into the sea, and drew up a casket covered with rust and slime and closed down with the seal of Solomon. He took it in his hands, and, holding it to his ear, he heard the voice of a spirit imprisoned within, telling in tones of enchanting sweetness how he, the poor, miserable fisherman, if he would release the prisoner, might sway the scepter of power, might revel in all sensuous delights, might command all the riches hidden by earth or sea. The foolish fisherman broke the seal by which the wisest of men had confined the enemy of mankind, and lo! there rose from the casket a cloud unformed, which towered to heaven, and which, at last, condensed into an awful malignant demon, who stood dilated to the skies. The fisherman lured the devil into his prison, closed the seal upon him, and threw him back into the depths. A similar task is laid upon the present generation."

THE RISE AND SUPREMACY OF THE STANDARD OIL COMPANY.

BY GILBERT HOLLAND MONTAGUE.

[Gilbert Holland Montague, lawyer and economist; born Springfield, Mass., May 27, 1880; graduated from Harvard university and Harvard Law school; began the practice of his profession in New York city immediately after graduation; author of several contributions to the study of trusts in economic reviews, the article printed below having appeared originally in the Quarterly Journal of Economics. Author of Trusts of To-day.] Copyright 1902 by George H. Ellis Company

The rise and progress of the Standard Oil company, from its inception in 1865 till its control, in 1878, of 95 per cent of the oil business of the United States, has presented itself to different critics in somewhat different characters; certain conservative writers think it was largely the result of discriminations in freight rates, extorted by more or less questionable practices from the easy virtue of the railroads. But just why the railroads found it expedient to grant such unusual favors, and why this particular group of men, above all others, proved best able to extort such favors, no one has satisfactorily explained. Corruption of the railway officials has been vaguely suggested; but it has not been shown whence this group of men had the means to suborn the railways, and no writer has been able to point to a piece of precise evidence, found by any court or investigating committee in the United States, which proved such subornation of railway officials, though it is not inconceivable that some evidence may exist. Congressional and legislative committees, on the other hand, and the more cautious writers on trusts, have been equally put to it to find in those acts of the railways which eventually made the Standard Oil company supreme any self interested motives. The fact of the discrimination in freight rates seems to account for the supremacy of the Standard Oil company. But why those refiners identified with the Standard Oil company, instead of some other group of refiners, should persistently have obtained the best rates, has been, to these investigators, a baffling mystery.

The secret of this strange success with the railways is not, however, completely insoluble. If the episodes in the progress of the Standard Oil company from 1865 till 1877 be carefully studied, the motives of every act, both of the company and of the railways, will certainly be revealed. The materials for this study are not lacking. A vast amount of evidence showing the ability of the Standard Oil company to turn these possibilities to advantage has been gathered by various commissions and investigating committees. With such sources of information as these available, an intelligible narrative may readily be put together. Not only may each act of the company and of the railways be authenticated, but also, at each step in the progress, the increasing efficiency and importance of the company may be estimated, and the momentary opportunities of railway and industrial conditions may be gauged. And so in what seems at first sight an unaccountable and suspiciously rapid growth may be discerned signs of inevitable development—the operation of motives which are, at any rate, explicable.

In 1865, when Mr. John D. Rockefeller began in a small way to refine petroleum at Cleveland, Ohio, the oil industry was in a singularly inchoate state With the success of Drake's oil well at Titusville, Pennsylvania, in 1859, refiners had been released from the necessity of distilling coal into petroleum before refining petroleum into kerosene; and at the same time the sources of petroleum were shown to be enormously greater than they had ever before been guessed. This discovery stimulated consumers to increased use of lubricants and burning oils and in this way rapidly increased the demand in the arts for the refined product. In even greater measure it encouraged the production of crude petroleum. Within a year after Drake's success, wells had been sunk all around Oil City and along the Allegheny river. In 1864 had occurred the Cherry "run," followed by the Benninghoff and the Pioneer "runs," and the sensational exploitation of Pithole creek. While Mr. Rockefeller was erecting his little refinery, Pithole City—now a field sown with wheat—had a postoffice nearly as large as that of Philadelphia. From Manitoulin island to Alabama and from Missouri to Central

New York, wells had been bored for oil. So rapid had been the increased demand for the products of petroleum, and so unexpected had been the increase of supply, that in 1865 existing refineries proved quite inadequate to the business suddenly thrust upon them.

The difficulties besetting refiners in 1865 were chiefly such as could be cured by an increase of capital. In 1861 the best wells had been thirty miles from the railroads. Because of the lack of barrels and the difficulty of transportation, petroleum had fallen from $20 a barrel to almost nothing. By 1863 boats had begun transporting petroleum down Oil creek, and small pipe lines and branch railway lines had been built. In 1866 a more efficient cylinder refining still was invented, casing and torpedoes were coming to be used in drilling, the tank car began to replace the clumsy flat car with its wooden tubs, and pipe lines regularly transported petroleum from the wells to the railroads. To secure these economies in refining, small concerns must either increase their capital to about $500,000 or else combine into this larger and more efficient unit of production. Mr. Rockefeller was among the first to see the exigency; and in 1867 he united into the firm of Rockefeller, Andrews & Flagler the refineries of William Rockefeller & Co., Rockefeller & Andrews, Rockefeller & Co., S. V. Harkness, and H. M. Flagler. The reasons for this union, as he afterwards stated them, must even then have been evident: "The cause leading to the combination was the desire to unite our skill and capital, in order to carry on a business of some magnitude and importance in place of the small business that each had separately heretofore carried on."

With the reorganization of the firm of Rockefeller, Andrews & Flagler, in 1870, into the Standard Oil company of Ohio, with capital stock of $1,000,000, the first period of the oil industry may be said to close. No company had sought, or, indeed, has since sought, to control the oil fields. So far as may be known, no refiner had yet organized the pipe lines to his exclusive advantage or exacted of the railroads better freight rates than were granted to his competitor. The transportation of oil by rail and by pipe line was left to independ-

ent companies, and it was only by the competition and by the improvements of such companies that the cost of the transportation had been reduced. Till 1870 the competition of refiners was solely concerned with efficiency of production; and, since this was to be gained only by refineries of $500,000 capitalization or more, there was concentration among the stronger concerns and extermination of the weaker. By its process of concentration, and solely on account of its superior efficiency, the Standard Oil company of Ohio became in 1870 larger than most of its competitors, and produced 4 per cent of all the oil refined. After 1870 the progress of the oil industry, generally, and the precedence of the Standard Oil company, in particular, was to lie in the direction of cheaper transportation exacted of the transportation companies by the refiners.

Opportunities for discriminating freight rates presented themselves early. How the Standard Oil company availed itself of the unique railway conditions and of the practices common in the freight traffic of that time is one of the most sensational episodes in the history of American railroads. By 1871 the New York Central, the Erie, and the Pennsylvania railroads had completed connections that afforded them entrance to Chicago, and the great struggle for the traffic of the west had set in. The roads were so poor, and the necessity for revenue so great, that rate wars had begun as early as 1869, when the New York Central and the Pennsylvania roads had secured connection with Chicago. With the entrance of the Erie road, and, in 1874, of the Baltimore and Ohio, into Chicago, the competition for traffic throughout the region of the trunk lines became more imbittered. During the years from 1869 till 1873 the agents of the roads met annually at New York to agree upon freight rates; and afterwards, in order to get traffic, they regularly broke their agreement. Every year during this period fourth class rates from Chicago to New York fell from about 80 cents per 100 pounds in December to about 25 cents in August and September. This reckless competition for traffic was extended to the oil regions. The Pennsylvania railroad, which had the earliest and closest connection with the center of petroleum production at Oil

City, hauled oil to Pittsburg, a distance of eighty miles, and to Philadelphia, a distance of four hundred miles. The Erie railroad, which had no direct communication with the oil country, effected an entrance by a connection with the Atlantic & Great Western road, and hauled oil from Oil City to New York, a distance of five hundred and fifty miles. The New York Central railroad entered Oil City by connections at Cleveland, and hauled oil to New York, a distance of seven hundred and forty miles. Just as agents of the roads had annually agreed upon a rate from Chicago to the seaboard, making the charge 80 cents by each road with a differential of 5 cents in favor of Baltimore and Philadelphia, so in the case of the oil traffic the same rate was charged by each road on oil moving from Oil City to the seaboard. The effect of this "group rate" was naturally displeasing to refiners at Pittsburg; it deprived them of all geographical advantage, and enabled their competitors at Cleveland—among others, the Standard Oil company—to ship oil seven hundred and forty miles by the New York Central railroad at precisely the rate they were charged for a haulage of four hundred miles.

Cleveland not only enjoyed the same railroad rates that Pittsburg had, but also had water communication to the east by way of the great lakes and the Erie canal. Pittsburg depended almost entirely for transportation upon the railroads. Cleveland, however, could at any time avail herself of the competition of rail and water transportation by taking to lake vessels whenever the charges of the New York Central railroad were unsatisfactory.

Cleveland, as a competitive point, therefore, had the oil traffic of the New York Central at her mercy. Unless the refiners at Cleveland were allowed low freight rates, the New York Central must see its traffic directed to lake vessels. As the danger of such loss became more imminent, the New York Central was obliged to grant greater and greater favors to the refiners. And when, in 1871, an unexpected shift in the center of oil production threatened the entire refining business at Cleveland, the railroads dependent on this business were stirred to unusual action.

Beginning in 1871, at the Clarion river, remarkable discoveries of petroleum had been made throughout Butler and Clarion counties, in the region extending five miles beyond Antwerp, and southwestward a distance of fifteen miles to Millerstown and Greece City. "The development southward," says the editor of the Oil City Derrick, "brought about conditions through which some of the most important railroads of the country might be deprived of a share of the oil-carrying trade. The Pennsylvania railroad, however, was not affected by the transfer of activities from the Venango region to that of Butler and Clarion counties. The northern railway lines—namely, the Erie and New York Central—were naturally affected by the transfer of operations to distant fields, which they could not reach with their existing connections. The first named road was materially aided by the gathering lines of the Pennsylvania Transportation company, operated by Henry Harley; but the New York Central and its connections were left without petroleum feeders of any description." As usual in new developments of territory, the increase in production due to the large capacity of the wells, the overcapacity of the pipe lines in the older oil fields, and the overproduction of refining plants which had taken place in the last two years—all these had conspired to make the transportation and refining of oil unremunerative throughout the petroleum country, and especially unprofitable at Cleveland.

To remedy this situation, a combination of the railroads and certain refiners was planned. "It had its inception," to quote again the editor of the Oil City Derrick, "with certain Philadelphia and Pittsburg refiners, with an agreement for co-operation with certain Cleveland refiners. But philosophical minds, viewing the subject from this distance, are agreed that it had its origin, as a matter of fact, with the railroad interests rather than with the oil interests." The form which this combination took was a contract between the railroads and certain refiners of Pittsburg, Philadelphia, and Cleveland organized into the South Improvement company.

By an act of the Pennsylvania legislature on May 1, 1871, the South Improvement company had been created and vested

with all the powers conferred by the act of April 7, 1870, upon the Pennsylvania company. The powers of the company included authority "to construct and operate any work or works, public or private, designed to include, increase, facilitate, or develop trade, travel, or the transportation of freight, live stock, passengers, or any traffic by land or water, from or to any part of the United States." Of the 2,000 shares of this company, 900 were owned by Messrs. H. M. Flagler, O. H. Payne, William Rockefeller, H. Bostwick, and J. D. Rockefeller, who later were to become prominent in the Standard Oil company.

On January 18, 1872, the South Improvement company effected the desired combination by completing contracts with the Pennsylvania, the New York Central, and the Erie railroads. According to the contracts the South Improvement company agreed to ship 45 per cent of all the oil transported by it over the Pennsylvania railroad, and to divide the remainder equally between the Erie and the New York Central railroads, to furnish suitable tankage facilities for shipping petroleum and receiving it at its destination, and to keep records of the amount of petroleum and its products shipped over the railroads both by itself and by other parties. The railroads in return agreed to allow the South Improvement company rebates on all petroleum and its products carried by them, to charge all other parties not less than the full rates specified in the contract, to furnish to the South Improvement company way bills of all petroleum or its product, transported over their lines by any parties whatsoever, and, finally, "at all times to co-operate, as far as it legally may, with the party hereto of the first part, to maintain the business of the party hereto of the first part against loss or injury by competition, to the end that the party hereto of the first part may keep up a remunerative, and so a full and regular business, and to that end shall lower or raise the gross rates of transportation over its railroads and connections, as far as it legally may, for such times and to such extent as may be necessary to overcome such competition." The aim of the railroads, as avowed in the preamble, was plainly an increase in traffic; "whereas the magnitude and extent of the business and opera-

tions to be carried on by the party hereto of the first part will greatly promote the interest of the party hereto of the second part, and make it desirable for it by fixing certain rates of freight, drawbacks and rebates, and by the other provisions of this agreement to encourage the outlay proposed by the party hereto of the first part, and to facilitate and increase the transportation to be received from it, . . . the party hereto of the second part covenants and agrees." And for the attainment of that end, the railroads reserved the right to grant similar rebates and advantages to any other party who should furnish an amount of transportation equal to that furnished by the South Improvement company and equal facilities for promoting the petroleum trade.

In general outline the contract was very like those subsequently made with the grain elevator owners in the northwest, and with the cattle shippers of Chicago. Throughout this period it was the policy of the railroads to bind to themselves growing businesses, in which, as in the elevator and refining industries, considerable capital and much enterprise were necessary in order to succeed, and by granting to these concerns special rates to build up trade for the industries and traffic for themselves. By this form of personal discrimination the railroads entering New York had built up traffic for themselves and business for A. T. Stewart, who was competing for the market in the central west with Field, Leiter & Co. of Chicago. Where the competition for traffic was keen, the railroads usually contracted with the strongest shipper or group of shippers to carry freight at a special rate, or else—as in the case of the large cattle shippers at Chicago and the South Improvement company in the oil regions—appointed the group "evener," and in return for a special rebate required it to apportion traffic among the roads according to a fixed ratio.

Such are the economic grounds on which to judge this contract. Popular judgment, however, was much less deliberate. On January 18th the contract was signed; and, on February 27th, the day after the contract went into effect, an excited mass meeting was held at Titusville and an organization to oppose the new company hastily effected. At once a

complete embargo was placed on the sale of oil to the South Improvement company. Committees were hurriedly despatched to the railway officials, to Harrisburg, and to Washington. On March 15th a resolution was introduced into the house of representatives at Washington to investigate the South Improvement company. On March 25th, in an agreement signed by the independent refiners, the railroads publicly abrogated their contract with the company, and announced that "all arrangements for the transportation of oil after this date shall be upon a basis of perfect equality to all shippers, producers, and refiners, and that no rebates, drawbacks, or other arrangements of any character shall be made or allowed that will give any party the slightest difference in rates or any discrimination of any character whatever; and, with this announcement, they issued new rates about 40 per cent lower than those provided by the contract. On April 6th, before it had the opportunity to do any business, the South Improvement company was summarily deprived of its charter by the Pennsylvania legislature. The company has never since had an apologist. The Standard Oil company, in spite of its part in the unfortunate combination, has always disapproved of the contract. And the bitterest reproach which opponents of the Standard Oil company heap against it is the taunt that the contract of the South Improvement company was renewed with the Standard "alliance," which was then forming.

The panic caused in 1872 by publishing the contract of the South Improvement company, though never more than fright—for the contract was never kept—still seemed to make the situation more acute. Under the stress of such difficult conditions, small concerns gave place to large, and large concerns combined into yet greater ones. Throughout 1872, 1873, and 1874 small refiners were driven into insolvency or forced into selling. The causes assigned for this are two. "The overproduction of 1873, 1874, and 1875," explains a leading opponent of the Standard Oil company, "and the consequent almost entire destruction of petroleum values gave the Standard Oil company, with its organization and capital, almost the desired monopoly." Discrimination in freight rates

in favor of the large refiners was the other and more aggravating cause. For, though they never resumed the contract of the South Improvement company, nevertheless, at the solicitation of refiners who had signed the agreement of March 25, 1872, the railroads soon resumed the practice of increasing traffic by giving special rates to the large shippers; and, though their motives were—so far as evidence is shown—thoroughly self interested, they hastened the absorption of the small refineries by the larger, and especially the expansion of the Standard Oil company, which was the largest of all. To profit by these discriminations, and immediately by the advantages of concentrated capital, the Standard Oil company of Ohio increased its capital stock in 1872 to $2,500,000, and in the same year combined with the Standard Oil company of Pittsburg, the Cleveland Standard refinery, the Pittsburg refinery, the Atlantic Refining company of Philadelphia, and Charles Pratt & Co. of New York—all leading independent refiners—into the Standard "alliance," which ten years later was to be the basis of the Standard Oil trust. "It was a union, not of corporations, but of their stockholders," says the solicitor of the Standard Oil company. "The several companies continued to conduct their business as before. They ceased to be competitive with each other in the sense of striving to undersell each other. They continued to be competitors in the sense that each strove to show at the end of each year the best results in making the best product at low cost. From time to time new persons and additional capital were taken into this association. Whenever and wherever a man showed himself skillful and useful in any branch of the business, he was sought after. As business increased, new corporations were formed in various states, in the same interest, some as trading companies, some as manufacturing companies." The motives of the combination, as stated by Mr. Dodd, were all owing to conditions prevalent in the period from 1870 till 1874. "Railroad rates were excessive and lacking in uniformity. When refiners were able to combine and throw a large volume of business to any particular road, they would get favorable rates The rebate and drawback system was then universal, and was not confined to oil. Undoubtedly,

this fact had much to do with the combination of refiners above referred to, and which came to be known as the Standard

By its economies in refining—attained as early as 1870—and in freight rates—the reward of its predominance in the industry in 1872—the Standard Oil company in 1873 escaped in great measure the depression which harassed its competitors. This depression, if continued, promised to be disastrous both to the newly formed "alliance" and to its dwindling competitors. In the interest of both parties, therefore, relief was sought in the restriction of the oil production. Throughout 1873 there was a disposition on the part of the producers outside the region of the great wells to suspend operations. In 1874, because of the small inducement to continue, there was an important shutdown in Clarion county. But these methods of relief were unavailing. Throughout 1874 the weaker refineries were forced to sell to the stronger, who reduced the overproduction at once by dismantling their works, so that in 1874 there were "in the oil regions proper but few refineries, and those universally owned by the Standard Oil company, those at Pittsburg being owned or controlled by that combination or by the conduit and empire lines. By its supremacy in the oil regions, then, the Standard Oil company in 1874 had added, to its economies in efficiency and in transportation by rail, the advantage of restricting overproduction, and in the period from 1874 till 1877 was ready to add the advantage of controlling the pipe lines.

In 1869 the first extended system of pipe lines—the Mutual Pipe Line—was laid in Clarion county. At the same time William H. Abbott and Henry Harley, with a capital of $2,000,000, were organizing into the Pennsylvania Transportation company the five hundred miles of pipe centering at the Miller farm. Vandergrift & Forman were establishing in Butler county a system which was later to be the nucleus of the United Pipe Line system, and the American Transfer company and the Empire Transportation company were forming. Such systems, however, were rare until 1874. Most of the pipe lines were scarcely ten miles long, and extended from Clarion river to some common point of shipment, where stated

freight rates were given. Their overcapacity had become so excessive, their competition so ill considered, and their solvency so much a matter of doubt that by 1874 most of them had been united into the system of Vandergrift & Forman, the Pennsylvania Transportation company, the Columbia Conduit company, or the American Transfer company. Vandergrift & Forman at that time controlled 25 or 30 per cent of the pipe line traffic in the oil regions, and the five companies together controlled by far the greater part of the traffic. Such was the situation when the Standard Oil company took a hand in the business.

In 1874 the firm of Vandergrift & Forman was reorganized. Its name was changed to the United Pipe Line company; and its officers were Mr. Vandergrift, president, and six officials of the Standard "alliance" among its nine directors. In the same year the five great systems of pipe lines agreed upon a uniform schedule of charges, and the patrons of these systems were allowed no special discriminations by the railroads. This new adjustment contained in the Rutter circular of September 9, 1874, raised the charges for transportation of oil nearly to the rates fixed by the contract of the South Improvement company, and allowed a rebate of 22 cents on all oil coming from the five great systems of pipe lines which maintained the uniform schedule of charges. By this new tariff the organization of the remaining lines into one or another system was considerably hastened; and in this process of bringing order into the confused network of pipe lines the Standard "alliance," the United Pipe Line company, owned by the Standard Oil company, and the great systems and their patrons were greatly benefited. With the railway companies the purpose was merely to put an end to the unreliable service of the small pipe lines, and to secure for themselves a larger and more certain traffic. With the pipe lines, however—though each of the allied pipe lines and every refiner who was served by them shared impartially in the rebate—the effect was particularly to build up the larger pipe line and the larger refiner at the expense of the smaller. For this reason the economies in transportation by rail and pipe line effected in 1874 tended greatly to increase the predominance

of the United Pipe Line company and the Standard "alliance."

In the year following the United Pipe Line company acquired, by purchase, the greater part of the pipe lines which had not participated in the agreement. Combinations among the large systems—the United Pipe Line company, the Columbia Conduit company, and the Empire Transportation company—gradually absorbed all the others. Meanwhile the pipe lines enjoying the discriminations so abused their privilege by high charges that in 1875 competition from without and suspicion within broke up the agreement. In 1874 the Baltimore & Ohio railroad had entered Chicago, and was making advances to the Columbia Conduit company. The railway situation was uneasy; and when, in 1875, the Erie railroad accused the Pennsylvania railroad of granting secret discriminations to the Empire Transportation company, the agreement among the pipe lines was immediately broken. The Columbia Conduit company attached itself to the Baltimore & Ohio railroad; the Empire Transportation attached itself to the Pennsylvania railroad; and the United Pipe Line company, through its owner, the Standard Oil company, completed an agreement with the Erie and the New York Central railroads, according to which it gave to each road 50 per cent of its traffic, guaranteed to the Erie railroad 27 per cent of the entire oil traffic in the oil regions, and received in return upon all shipments a rebate of 10 per cent. The motives of the Erie and the New York Central railroads were plain. Entering the oil regions by connections from the north, these roads depended entirely for their traffic upon the Standard Oil company at Cleveland. Accordingly, for the guarantee that its oil traffic would not be diminished, the Erie railroad could afford to pay roundly; and for the maintenance of the oil industry at Cleveland, and for the privilege of handling all its traffic, the New York Central railroad was ready to grant a liberal discrimination. Therefore, throughout the rest of 1875 all the pipe lines in the oil regions arrayed themselves with one or another of the three rival pipe lines and their allied railroads; and the armed peace thus maintained continued throughout 1876.

In 1877, with the aid of the Pennsylvania railroad, the Empire Transportation company secured control of a refinery at Communipaw, and began constructing others at Philadelphia. The roads in alliance with the Standard Oil company were the first to discover the encroachment, and resented it before the Standard Oil company had time to act. "Unless checked," said Mr. Blanchard, of the Erie railroad, "the result would be a diversion largely of the transportation of oil from our roads. The New York Central road and our own determined that we ought not to stand by and permit these improvements and arrangements to be made, which, when completed, would be beyond our control. We determined, therefore, to make the issue with the Pennsylvania Railroad company." At the suggestion of the railroads, accordingly, the Standard Oil company, by ceasing on March 18, 1877, to send freight over the Pennsylvania railroad, precipitated a war between the great pipe lines and their allied roads.

The suddenness and fury of the war for the oil traffic which followed is explained only by the strained relations of the trunk lines at that time. Since 1874, when the Baltimore and Ohio railroad entered Chicago, there had been a ruinous war of rates. Freight charges during this period from Chicago to the seaboard had fallen from $1 to 10 cents. New York Central and the Erie railroads had lost millions, and the Baltimore & Ohio and the Pennsylvania railroads had ceased to pay dividends. The struggle in the oil region was, therefore, merely part of a contest extending half across the continent. Beginning fully a month before the larger contest approached settlement, it continued bitterly for six months until the very last agreements had been signed. In this struggle the Columbia Conduit company connected with a branch of the Reading railroad, and controlled the traffic in the newly discovered Bradford district. The Empire Transportation company meanwhile, aided by the Pennsylvania railroad, sought by a tremenduous effort to crush the United Pipe Line company and the Standard Oil company. The Pennsylvania railroad carried oil at eight cents a barrel less than cost, and ordered the refineries of the Empire Transportation company to sell oil in the territory of the Standard

"alliance" at any price. But the Standard Oil company, with its high degree of mechanical efficiency, its well organized United Pipe Line system, and its firm alliance with the Erie and the New York Central railroads, proved superior. On October 17, 1877, the Pennsylvania railroad was forced to abandon the struggle, and to sign a contract which gave the Standard Oil company practically the monopoly of the production and transportation of oil in the United States. According to this contract the Standard Oil company was appointed "evener," to apportion oil traffic in the following ratio: 63 per cent of the oil traffic was to go to New York city and 37 per cent to Philadelphia and Baltimore; of the traffic going to New York city, the New York Central, the Erie, and the Pennsylvania railroads were each to carry one third; of the traffic going to Philadelphia and Baltimore, the Pennsylvania railroad was to carry 70 per cent and the Baltimore and Ohio 30 per cent. By the terms of the contract the Pennsylvania railroad was guaranteed an annual traffic of not less than 2,000,000 barrels; and the Empire Transportation company was purchased for $3,000,000 by the Standard Oil company and the United Pipe Line company. The Standard Oil company, meanwhile, for its services as "evener" was remunerated in the following fashion: After May 1, 1878, when the contracts between the Pennsylvania railroad and its shippers expired, the Standard Oil company received a rebate of 10 per cent on all its freight. In addition to this it was allowed, with other shippers, a rebate of 68½ cents in order that it might be on an equality with those refineries who shipped by the Erie canal; and the American Transfer company, which had now been united with the United Pipe Line company, was allowed 22½ cents as its share of the through rate.

The Pennsylvania railroad offered to carry oil for all shippers on these terms, except that for the 10 per cent rebate it asked such considerations as the Standard alone could furnish; and, indeed, for those refiners who made all their shipments over its line, it continued to give rates as low as those of the Standard Oil company. On December 8, 1878, however, when the Erie canal was closed, the railroad ceased mak-

ing such favorable rates for independent refiners; and on March 31, 1879, all payments of rebates ceased.

In view of the bitterness of the war which it settled, this agreement was very favorable to the defeated party. The Pennsylvania railroad had gone out of its way to strike at the power of the Standard "alliance," and after expensive fighting had been completely beaten and forced to sue for such terms as might mercifully be granted it. The Standard Oil company, however, required of it only such favors as it already received of the New York Central and the Erie railroads, and, in return, guaranteed its oil traffic, purchased its interest in the Empire Transportation company, and advanced the money to buy oil cars. It was, indeed, shrewd magnanimity; for, in advancing the money to complete the sale, the Standard Oil company became the mortgager of the oil cars of the railroad, and by aid of the discriminations provided in the contract it was able, in a few months, to drive the Columbia Conduit company into selling. So that in 1878 and 1879 the Standard Oil company owned or controlled by contract every transporting agent in the oil regions.

The achievement of this supremacy marks the close of the first phase of the Standard Oil company. It owned the terminal facilities of the New York Central for handling oil at New York. It leased the terminal facilities of the Erie railroad at New York. It owned or leased almost all the oil cars on the Erie, the New York Central, and the Pennsylvania railroad. Through the United Pipe Line company and the American Transfer company, it purchased, one after another, twenty six pipe lines that threatened competition. And when, in 1879, the Tidewater Pipe Line company was built to the seaboard, in order to evade the discriminations of the railways, the Standard Oil company was able, after a struggle of four years, to defeat that, also. The dominance of the Standard Oil company in the refining industry was even more striking. In 1879 it controlled 95 per cent of the refineries in the oil region, and at one time during this period there were scarcely a dozen independent refiners in business.

The organization of the Standard "alliance," which in 1879 controlled the transportation of oil by rail and by pipe

line and produced 95 per cent of the refined oil of the country, was an informal substitute for the modern trust. The bond of unity was common ownership of stock in the various companies of the "alliance" and personal agreement between the officers of the respective companies and the officers of the Standard Oil company. The Standard alliance included the Standard Oil company of Cleveland, the Standard company of Pittsburg, the Acme Oil company of New York (located at Titusville), the Imperial Oil company at Oil City, the Atlantic Refining company of Philadelphia, the Camden company of Maryland, Charles Pratt & Co. of New York, J. A. Bostwick & Co., Sone & Fleming Manufacturing company, Warden, Frew & Co. of Philadelphia, and the Baltimore United Oil company of Baltimore.

In 1881 the Standard Oil company of Ohio, the nucleus of the Standard "alliance," was a corporation capitalized at $3,500,000. Since the formation of the "alliance" it had maintained connections with its allies by a union, not of corporations, but of stockholders. "Then," as the solicitor of the Standard Oil company explains, "for convenience of control and management the Standard Oil trust was formed. It was simply an agreement, placing all the stock of these various companies in the hands of trustees, declaring the terms on which they were held, and providing for the issuance of a certificate showing the amount of each owner's interest in the stock so held in trust. This agreement did not in any essential manner change the character of the association previously existing. Its essential character was simply a common ownership of stock in various corporations. If they had so preferred, the owners of these several associated companies could have organized—in the state of New York, for example—with any capitalization desired. Each could then have lawfully combined with all the other companies, forming one corporation to transact business wherever desired. But it seemed preferable, instead of organizing one corporation in New York, to organize a corporation in each state where business was being carried on, so that the business transacted in each state might be conducted by a home corporation, subject in all respects to the law of the state where located. Accordingly, we organ-

ized a Standard Oil company in New York, in New Jersey, in Kentucky, in Iowa, in Minnesota; and similar corporations already existed in Ohio and Pennsylvania."

As the first "trust" form of combination, the agreement under which this union was brought about deserves attention. There were three classes of parties to the contract: first, all the stockholders and members of the Standard "alliance," together with members of some other companies; second, all the more important officers and stockholders of these several companies; and, third, a portion of the stockholders and members of some additional corporations and limited partnerships. Provision was made for the admission of new companies and individuals and for the formation, whenever advisable, of a Standard Oil company in any state or territory in the union. The parties of the several classes were to transfer all their property to the Standard Oil companies in their several states, in consideration of which they should receive stock equal at par value to the appraised value of the property so transferred. This stock—and here is the significant feature of the new organization—was to be delivered to trustees, and held by them and their successors thereafter; and no subsequent issue of stock should be made by the companies except to these trustees. In return for the stock intrusted to them, the trustees were to deliver trust certificates, equal to the par value of the stock of the several Standard Oil companies to be established and to the appraised value of the stocks of other companies delivered to the trustees. The trustees provided for were nine in number. They were John D. Rockefeller, O. N. Payne, and William Rockefeller, elected to hold office till 1885; J. A. Bostwick, H. M. Flagler, and W. G. Warden, to hold office till 1884; and Charles Pratt, Benjamin Brewster, and John D. Archbold, to hold office till 1883. At each annual meeting the certificate owners elected three trustees, for three years each, to fill vacancies due to expiration of term. Such was the "trust" as formed by the agreement of January 2, 1882.

Four years before the formation of the trust, two pipe line companies, the Seaboard Pipe Line company and the Equitable Petroleum company, projected to afford an outlet

to the seaboard, had been organized by oil producers. Upon their failure, the producers organized the Tidewater Pipe Line company, which ran from the Bradford region to Williamsport, a distance of 110 miles; and thence, by a connection with the Philadelphia and Reading railroad, the oil was carried a distance of 250 miles to Philadelphia. On the 1st of June,1879, this company commenced the shipment of oil. The railroads were not content to see the oil traffic slip through their hands; and on the 5th of June, at a conference between the four trust lines at Niagara Falls, resolute measures were adopted to drive this rival transportation agent from the business. The rate on crude oil per barrel was lowered to 20 cents on all oil of the Standard "alliance" moving from the oil regions to New York, Philadelphia, and Baltimore. A corresponding reduction of the rate to the general public was made from $1.15 to 30 cents. These rates took effect at once; and, as competition continued, a further reduction was made on August 1 to 15 cents per barrel.

Throughout the period of the organization of the trust, and for a full year after, this fierce contest between the railroads and the Tidewater Pipe Line company continued. The immediate effect, of course, was to benefit the shippers, and particularly the largest shipper, which was the Standard. The ownership by the Standard of the terminal facilities and of the greater number of the oil cars of the railroads now became a fact of importance. In consideration of its heavy investments in these interests, and of its agreement to ship and to unload its oil at its own risk, the Standard had already been allowed rebates. But now the Standard began the building of pipe lines to the seaboard and the formation of the National Transit company. As pipe lines were a cheaper mode of transportation than railways, the building of these lines made necessary a readjustment of freight rates; and, as the pipe lines then building could not carry the oil the entire distance, contracts for joint carrying had to be made with the railroads. The first contract—made between the National Transit company and the Pennsylvania railroad on May 6, 1881—related to the apportionment of the freight when the haul was partly by pipe line and partly by rail. The Pipe Line company guaranteed

the railroad one-third of the transportation of oil to the seaboard. The Standard was to pay exactly the same rate as other shippers over the railroad. On such oil as was carried partly by pipe line and partly by rail, a through rate was made, of which the pipe line naturally received a share; and, finally, the Pipe Line company agreed to remit part of the charge to its local pipes to the railroad. Instead of a contract for rebates to the Standard, this was a contract for rebates to the railroad. The reason for this contract was that the seaboard pipe line of the Standard did not extend beyond Hamilton, Pa.; and to compensate the railroad for its low rate of freight and for its grants of rights of way—no free pipe line law then existing in New Jersey—these rebates were provided.

Strengthened by these mutually helpful contracts, the National Transit company and railroads were meanwhile wearing out the Tidewater Pipe Line company, and in 1883 forced it to cease its opposition. The company was never absorbed by the Standard Oil trust; but on October 9, by an agreement with the National Transit company, it agreed to accept as its share of the oil traffic 11½ per cent of the total pipe line transportation of petroleum to the seaboard, and was guaranteed $500,000 in annual profits for fifteen years. With this settlement the war of the transportation agents ceased, and the Standard Oil trust established itself in the strategic position which substantially controlled the transportation of oil to the seaboard. By the early seventies the Standard had attained the pre-eminence in mechanical efficiency which it has ever since maintained; by the agreement with the Pennsylvania railroad in 1878 it had gained a dominance over transportation which it never since has lost; and by its contract in 1881 it made possible the completion of its pipe line to the seaboard and its independence of railroads. Such contracts as the Standard subsequently made with the Pennsylvania railroad were agreements by which the railroad got some part of the freight, though it did no part of the carrying. The Standard Oil trust now gave rebates instead of receiving them. Over every branch of the industry, in 1883, it was supreme.

From the very beginning of the oil industry in Pennsylvania, movements for the restriction of oil production had been frequent. Restriction had been the aim of the Petroleum Producers' association at its organization in 1869. The association had maintained an agency to store all oil above a certain amount and keep it from the market. This early "shut down" failed because of the enormous production in Butler county. Succeeding "shut downs" in 1872, 1874, 1876, and 1878, met with similar fate. In 1884 there was another general movement among producers to restrict drilling; but, through the refusal of the operators who were running large wells in the new Thorn Creek district, the movement was only partially successful. It led, however, to the organization of the Producers' Associated Oil company, with a capital stock enabling it, when necessary, to purchase oil property in order to curtail production

On the 1st of October, 1887, this new organization, embracing 85 per cent of the 14,000 producers in the oil regions, agreed with the Standard Oil company to restrict production. From June to October the Producers' Protective association, by various secret and public meetings, had encouraged the movement. The conditions of the industry favored the organization. The accumulated stock of oil was 31,000,000 barrels, prices were below the remunerative point, and the Standard was losing by the deterioration of oil in its store. After conference between the Standard and the associated producers, it was agreed that the producers should restrict their productions one third during the following year, in consideration for which the Standard turned over to the producers 6,000,000 barrels of oil, at the market price at the time of the contract, and secured to the producers the profit from the anticipated rise in price.

By this bargain the producers immediately profited. On the oil they received from the Standard they made nine cents a gallon. Encouraged by their success, they made agreements during the next year with the well drillers' union to equalize the amount of oil produced by each individual. Although it was not possible to bring all the producers into the agreement the price of crude oil was advanced by this

restriction 29 cents per barrel. Although the Standard Oil company had entered into the agreement only at the urgent request of the producers, as the chief refiner it bore the burden of the advance; and when the "shut down" was found to be injuring the laborers employed in the drilling of wells, and the producers' association set aside 1,000,000 barrels of oil for their relief, the Standard added another million for the same purpose. This philanthropy, in the end, proved not unprofitable. The Standard benefited by the harmony it had established; and the producers, by relieving the well drillers, prevented them from working for producers outside the agreement.

As was expected, the results of this movement were only temporary. In time the "shut down" was abandoned, but not until it had gained a great though transient benefit, and had given the impulse to the building of several pipe lines.

The passing of the interstate commerce act, in 1887, makes a natural division in the record of the railroad arrangements made by the Standard. By the terms of that act, discriminations were forbidden, and such contracts with shippers as had been the rule since the late sixties were made illegal. The interstate commerce act seems to have been observed by the Standard Oil company. "Little testimony," says the industrial commission of 1900, "was brought forward to prove that it still actually receives lower rates for shipment over the same tracks than its competitors." In the testimony before the commission, on this latter point, the opinion was expressed by witnesses testifying in opposition to the Standard Oil company that direct discriminations and rebates are still received by the Standard; but the evidence adduced in proof of this opinion was unsatisfactory, and was considered entirely inconclusive by the commission.

In other ways than by discriminations in actual rates the Standard Oil company, after 1887, secured special advantages in transportation. The shipments of oil from those localities which it chose for distributing points were so large that the freight rates for that locality were naturally most favorable to this chief commodity of shipment. Competitive points, points where several railroads compete, or where water transportation

competes with the railways, were generally fixed upon as distributing centers. Accordingly, lower freight rates prevailed at the large shipping points of the Standard than prevailed at places where its competitors made most of their shipments. The Standard Oil company located its refineries at points nearer the place of consumption, and so economized in shipping distance. Thus it transferred most of its business from Cleveland to Whiting, Ind., in order to be nearer the southern market and to the west, and began to supply the eastern market from its refineries at Bayonne, N. J. By wise distribution of its refineries the Standard became largely independent of the changing freight rates that distressed those independent refiners who shipped their oil long distances. A less honorable advantage, it has been alleged, accrued to the Standard by the practice, among the railroads, of under billing the weight of the contents of the tank car.

With nothing more exciting than an occasional case before the interstate commerce commission regarding shipments by tank car, the Standard Oil trust continued from 1887 until 1892. Its growth and prosperity had been steady. The property of the various companies that entered the trust in 1882 was valued at $75,000,000. In 1892 the value was estimated at $121,631,312; and 50 per cent of this increase had come from profits invested and the remainder from additional capital subscribed. The dividends meanwhile had risen from 5¼ per cent in 1882 to 12 per cent in 1891. During the ten years following 1882 there had been a gentle decrease in the price of refined oil, and a slight decrease in the difference between the price of refined and the price of crude oil—a difference which measures the charge for refining. The attitude of the Standard Oil trust during these years was one of quiet dominance. It was now to meet an unexpected difficulty in the courts, which rendered necessary a complete change of organization.

In 1891 the state of Ohio, by its attorney general, began action to oust the Standard Oil company of its corporate rights, on the ground that it had abused its corporate franchises in becoming a party to an agreement against public policy. The petition averred that in "violation of law and

in abuse of its corporate powers and in the exercise of privileges, rights, and franchises not conferred upon it," the defendant company had become a party to the trust agreements of 1882. "All the owners and holders of its capital stock, including all the officers and directors of said defendant company, signed said agreements without attaching the corporate name and seal." Prior to the dates of the trust agreement aforesaid, the petition continued, the defendant's capital stock consisted of 35,000 shares. Upon the signing of said agreements, 34,993 shares of said stock, belonging to the persons who signed the agreement, were transferred upon the defendant's books to the nine trustees appointed and named in the agreement, by virtue of which "the nine trustees have been, ever since the signing of said agreements, and still are, able to choose and have chosen annually such boards of directors of said defendant company as they (said nine trustees) have seen fit, and are able to and do control the action of the defendant in the conduct and management of its business."

In answer to this petition the Standard Oil company denied that it had become a party to either of the agreements in said petition set forth, or that it had at any time observed or carried out those agreements. "Said agreements," continued the answer, "were agreements of individuals in their individual capacity and with reference to their individual property, and were not nor were they designed to be corporate agreements, and defendant denies that said agreements have illegally affected its corporate capacity or that defendant has permitted its corporate powers, business, and property to be exercised, conducted, and controlled in an illegal manner."

By a demurrer to the defendant's plea the issue was squarely raised whether the act of all the stockholders, officers, and directors of a corporation may rightly be called the act of the corporation. "It seems to us," the plaintiff argued, "impossible to read the agreement and consider the proceedings which confessedly have taken place under it, without reaching the conclusion that there has been a studious design and effort on the part of the promoters of the trust scheme to obtain all the advantages of the actual presence and participation of the defendant corporation in the objects and pur-

poses of the agreement without formally making it a party to it. But is substance to be sacrificed to shadow? Have we not shown sufficient actual corporate conduct to obviate the necessity for formal corporate action, such as the adoption of resolutions or the signing of a name?"

The court adopted the argument of the plaintiff, and not only forbade members of several corporations to combine as such and merge their interests in a trust, but it also declared such combination a restraint of trade, illegal, and quite opposed to public policy, and by the force of its decision put an end to the trust as a form of business combination.

Accordingly, in 1892, the Standard Oil trust was dissolved, and the separate establishments and plants reorganized into twenty constituent companies. The trust certificates, when surrendered, were replaced by a proportion of the shares of each company, properly divided. By the form of transfer adopted, the trustees placed in the hands of their attorney the amount of shares held by the trustees in the several companies of the trust, and authorized the attorney to secure from each of these companies transfer upon their corporate books of stock certificates for whole shares, and scrip for fractional shares thereof. Although the trust was formally dissolved, the men who were the trustees hold a majority of the stock in all the different companies which composed the trust, so that they work together as harmoniously as before. The replacement of trust certificates by proportional shares of stock in the separate companies continued slowly, and is not yet complete. Substantial unity of action among the several companies was not changed.

Meantime the Standard Oil company bought a large proportion of the stock of the Producers' Oil company, with a view, as it would appear, to securing a controlling voice in its management; but it was so opposed in its ownership that it transferred its shares to a certain Mr. John J. Carter. Mr. Carter brought suit to be allowed to vote his stock; but, as the organization was a limited partnership, the courts upheld the company in denying him admission. With the United States Pipe Line company the National Transit company was more successful. It secured $383,000 out of a total of $1,119,000

of stock; and, after permission to attend the meetings of the company and to vote the stock had been refused by unanimous vote of the other stockholders, the courts decided in favor of the National Transit company. The purchase of stock was made, says Mr. Archbold, "with a view to having such knowledge as we could have rightfully through such ownership—as we should acquire in the progress of the affair;" and this information the National Transit company gets from its one director upon the board of the United States Pipe Line company.

To prevent the Standard Oil company from obtaining control of these independent organizations, the Pure Oil company was projected in June, 1895, to secure control of the other independent companies. In 1897 the Pure Oil company was organized as a New Jersey corporation with authorized capital stock of $1,000,000. In its structure this company is curiously like the former Standard Oil trust. The holders of 66,000 shares in the company, being more than a majority, vest the voting power of such shares in fifteen persons for twenty years; and it is agreed that one half of all shares hereafter subscribed shall similarly be transferred to the trustees. The ownership of the shares may be transferred, but purchasers have no rights other than those provided by the trust agreement. The trustees are to vote as a unit, to the full number of the shares they hold at the election of directors. One third of the trustees retire annually, and their successors are elected by the general stockholders. By a vote of three fifths of both classes of stockholders, on the redemption of the preferred shares at $110, the trust may be cancelled. The formation of the voting trust, it was claimed, was made necessary by the attempt of the National Transit company to secure control through the purchase of shares of the Producers' Oil company and the United States Pipe Line company. In order to keep the control of the latter company in hands friendly to the independent interests, there was devised a voting trust agreement, according to which the signers vested their interests in the stock in a certain Mr. A. D. Wood as trustee for five years from the 1st of April, 1893, unless sooner terminated by a vote of three

fourths of the stock so held in trust. Mr. Wood was allowed full power to elect officers, but was bound to vote for persons interested in the business as independent refiners. It is the purpose of the Pure Oil company, at the expiration of this trust agreement, to anticipate any attempt of the Standard Oil company to control the company.

While the independent refiners have been seeking security in the trust form of organization, the Standard Oil company has adopted the contrary policy. In 1892 the trust dissolved into its constitutent companies, the former trustees holding a majority of the stock in each corporation and the holders of trust certificates exchanging them for the stock of the several companies in agreed proportion. By purely informal harmony, a unity of action among these corporations was maintained. A large quantity of trust certificates were still outstanding; and the dividends, when declared, were at a certain percentage upon these outstanding certificates and at a properly adjusted rate upon the capital stock of the different companies, so that the rate of dividends might be considered as if it were entirely on the trust certificates at their former full amount. In order to secure more complete unity and to provide for the claims of smaller holders of trust certificates, the Standard Oil company was organized under the laws of New Jersey in 1899. This corporation, though practically a new organization, was in form a continuation of the old Standard Oil company of New Jersey, with an amended charter and capital increased from $1,000,000 to $110,000,000. This corporation was authorized to own the stock of any of the different corporations connected with the Standard Oil company, and to buy from all parties who own such stock whenever they desired to sell. "The new Standard Oil company of New Jersey," said the industrial commission in 1900, "has recently been formed with the intention of transferring the stock of the different corporations into the stock of the new company, so that, when the transfer is finally made, one single corporation, the Standard Oil company of New Jersey, will own outright the property now owned by the separate companies which are commonly known and mentioned together under the name of the Standard Oil company. This combination at present has

no formal unity. It has a practical unity as great as it will have probably after the complete change into the New Jersey company is effected." Since 1900 about $97,000,000 of the capital stock of this company has been used to purchase at par the stocks and properties of the other Standard companies, the capitalization of which was approximately $97,000,000, but whose good will and earning power, as represented by the market value of the stock, aggregates $650,000,000.

Interesting as they are, the particular forms which the corporate organization of the Standard and of its competitors assume are the least important phase of their competition. The progress of both the Standard and the independent companies has been most marked in recent years in foreign countries. To place American oils in eastern markets has required constant cheapening of production and transportation. An immense outlay for additional pipe lines, more and larger steamers for ocean transportation, and the adoption of the tank car and tank wagon system of delivery have been made necessary, so that to-day crude oil is carried almost exclusively by pipe lines, railroad transportation is confined to the products of crude oil, and the Standard has no arrangement apportioning to the railroads any share of the crude oil traffic. At present it is in its methods of marketing, by which it meets competition at home and abroad, that the real interest lies.

Until 1895 the sale of crude oil by the producers had been on the exchange at Oil City. Throughout the eighties the market in the exchange had been wildly speculative, but, gradually, less and less oil came to be sold on exchange; and, finally, on January 23, 1895, the Seep Purchasing agency of Oil City, on behalf of the Standard Oil company, posted a notice that thereafter the prices paid by it to oil producers "will be as high as the market of the world will justify, but will not necessarily be the price bill on the exchange for certificate oil." The Seep Purchasing agency purchases for the Standard Oil company 80 per cent of the crude oil produced in Pennsylvania and Ohio, and by its action it fixes the price of crude oil in the oil regions. "We have before us," says Mr. Archbold, "daily the best information obtainable from all the world's markets as to what the offerings are and as to

what it is possible to sell for; and we make from that the best possible consensus of prices, and that is our basis for arriving at the current price." In the period from 1895 to the present, it may be added, the difference between the price of crude oil and the price of refined oil has remained almost constant, which shows that this power of fixing the price of crude oil has not been abused, in spite of the fact that the Standard Oil company during these years refined over 80 per cent of the output of oil.

By its control of the pipe line systems the Standard Oil company maintains its advantages over the independent refiners of the oil regions. The practice of the pipe line companies is to receive all oil produced in the wells with which their pipes are connected, gauging the amount and recording the quantity received from each producer. The producer may then receive from the company at any time the value of his oil in store at the price for that day, or, instead, may receive pipe line certificates which are negotiable in the open market. The company lays pipes without extra charge to new wells, though they be fifteen or twenty miles distant. In the proper management and extension of the pipe lines, more than in any other branch of the business, is the necessity for large investments of capital apparent. In the early days of the industry the absence of these facilities completely demoralized the business; and for the adequate management of the lines no company except the Standard has been ready and able to make the necessarily enormous investment of capital. With their scant resources the smaller companies were unable to respond to the slightest sudden demand for new facilities. The superiority of the Standard Oil company, in this particular, was clearly shown in the sudden development of the McDonald field in 1891. In July of that year the output of the McDonald field was 3,000 barrels daily. By the middle of August it had reached 15,000 barrels. By the first of September the Standard Oil company, through its ally the National Transit company, was able to handle 26,000 barrels a day; by the first of October it could handle 40,000 barrels a day; and, when in November the production of oil reached nearly 80,000 barrels per day, the capacity of the pipe lines had

risen above that figure. Iron tankage of the capacity of 3,000,000 barrels was erected during these months, and fifty three miles of pipe laid in a territory of twelve square miles. Had the National Transit company, with its $30,000,000 of invested capital, not been in control, it may be seriously doubted whether local enterprise could ever have effected so remarkable an extension of pipe lines in so short a time.

Associated with its advantages in transportation is the advantage the Standard Oil company has in distributing its refineries in strategic locations. Not only is a saving in transportation charges thus effected, but advantages accruing from cheaper land, labor, and fuel, are also secured. To gain this economy, the Standard Oil company spent millions in new plants near New York and Philadelphia. It bought the entire output of the refineries in the newly discovered oil region in Colorado, and secured control in 1898 of 75 per cent of the refining business in Canada; and for the same purpose it has recently rebuilt refineries in Pennsylvania, in order to profit by the cheapened fuel.

The vexed question of the effect of the Standard Oil combination on the price of refined oil will probably never be settled. Opponents of the Standard Oil company declare that the Standard has not reduced the price of refined oil as compared with crude oil to any such degree as would be the case under open competition. The effect of the combination, they point out, is to be gauged only from the margin between the prices of refined and crude oil; and the reduction of this margin, though steady, is, in their opinion, by no means commensurate with the improvements in the processes of refining. In reply, Mr. Archbold of the Standard Oil company has declared that his company is unable permanently to exact excessive prices. Temporarily, it might have such power; but, if it used this power arbitrarily, it would provoke heavier competition. There is, he admits, a certain amount of monopolistic power, coming from the aggregation of capital itself, which keeps prices higher than they would be under severe competition; but, at present, this power and its effect upon prices are very slight, and the lessened cost of doing business on a large scale more than compensates in lowered prices for the slight

monopolistic power of getting higher prices. Perhaps the most significant criticism which the independent refiners pass upon the price which the Standard Oil company gets for its oil is that the improved methods of utilizing by-products in recent years have made by-products as remunerative as the refined oil itself; and yet the margin of price between refined oil and crude oil during this period has only slightly decreased. The statement has frequently been made that the Standard has reduced its prices in the territory of its competitors, and maintained prices at more profitable rates as non-competitive points. Such a practice, as an instance of ordinary business competition, is not extraordinary. A similar charge could be brought against most large businesses; and, as those who bring the charge seldom take into account the varying cost of transportation to markets of varying means of communication, small probative value can be attached to their bare statement of difference in price. Of more serious nature are the charges that the Standard Oil company suborns the employees of its competitors to secure information as to their shipments and customers, and that it resorts to unfair tests and adulteration of its oils and to the copying of brands with the design to deceive purchasers. On all these points the evidence is at best vague and inconclusive. The officials of the Standard Oil company testify that it is their practice to ask their salesmen to keep their eyes open, and to inform the company as to those from whom different dealers are buying; but they flatly deny the charge of suborning the employees of their rivals, and very conclusively explain away the charge of fraud in the copying of brands and in the tests and adulteration of their products. The energy of the Standard Oil company, in developing new departments of the industry, and its enterprise in undertaking the production of all the chemicals and materials incidental to the process of refining, has been recognized, even by independent refiners, as truly great, and quite beyond what smaller competitors could have attempted. The leading by-products are gasoline, naphtha, paraffin, lubricating oils, and vaseline products. In addition to these, fully 200 other by-products are extracted and used for medical purposes and for aniline dyes. To

utilize all these by-products requires the greatest specialization of methods, encouragement of invention, investment of capital and extension of plant. A refinery of a capitalization of $500,000 cannot realize such economies. The undoubtedly large profit accruing to the Standard Oil company from the utilization of by-products is owing entirely to its superior mechanical efficiency and organization.

Aggregation of capital has brought to the Standard Oil company its greatest advantage in the development of foreign trade. In its contest on the continent, and especially in Russia, with the great oil interests of the Rothschilds, of the Nobel Brothers, and of prominent England capitalists, its success has been entirely due to its great capitalization. Since 1871 the export of petroleum products has increased seven times, and of the present exports the Standard Oil company ships 90 per cent. In Russia the competition between the Standard and the Nobel Brothers is keen. The price of Russian crude oil is lower than that of American oil; and the Nobels are at present shipping it in tank steamers to India, China, and Japan. To meet this competition, the Standard Oil company has established agencies all over the world, and has built bulk tankships for transporting its product. With the exception of the trade in the far east, where Russian competition is especially keen, the export price of oil has always been kept above the American price.

The present position of the Standard Oil company is one of abundant prosperity and power. It is opposed by a combination—the Pure Oil company—which works in harmony with an independent seaboard pipe line—the United States Pipe Line—and with 66 independent refineries. The Standard controls 90 per cent of the export trade and 80 per cent of the domestic trade. By its control of the pipe line situation it has become quite independent of the railroads. By its preponderant purchases of crude oil it has been able to steady and roughly direct the course of prices of petroleum. By its advantages in locating its refineries near their several markets and in utilizing by-products it has effected enormous economies in transportation and manufacture, and increased its dividend from 12 per cent in 1892, when the Standard Oil

trust was dissolved, to 48 per cent in 1901. The power of the Standard Oil company is tremendous, but it is only such power as naturally accrues to so large an aggregation of capital; and in the persistence with which competition against it has continued, in the quickness with which that competition increases when opportunity for profit under existing prices appears, and in the ever present possibility of competition which meets the Standard Oil company in the direction of every part of its policy, lie the safeguards against the abuse of this great power.

THE RIGHT OF CONGRESS TO CONTROL THE TRUSTS.

BY PHILANDER C. KNOX.

[Philander C. Knox, United States senator from Pennsylvania; born Brownsville, Pa., May 4, 1853; graduated Mount Union college, O., 1872; three years later admitted to bar, and in 1876 appointed United States district attorney for the western district of Pennsylvania; since 1877 has practiced law with James H. Reed, under the firm name of Knox & Reed, devoting attention especially to corporation law; appointed attorney general of United States April 9, 1901, by President McKinley; elected senator from Pennsylvania, 1904.]

The people by common consent have denominated the great industrial and other corporations now controlling many branches of commercial business, trusts. The technical accuracy of the term is unimportant, but indeed it is much more apt than might be supposed, when it is recalled that the essential difference between the old industrial trusts and the great corporations owning and controlling subsidiary ones is that in respect to the former the shares of independent corporations agreeing to act in harmony were lodged with a trustee who received the separate earnings and distributed them among the holders of trust certificates, while as to the latter, a corporation is created to take over the title to the stock or properties of the constituent companies and issue its own shares as the evidence of interest in the combination. The corporation owner of corporations invokes specific legal authority from the legislature of the state under which it is created.

President Roosevelt, in his first message to congress, said:

There is a widespread, settled conviction in the minds of the American people that these trusts are, in many of their features and tendencies, hurtful to the general welfare. This springs from no spirit of envy or uncharitableness, nor lack of pride in the great industrial achievements that have placed the country at the head of the nations struggling for commercial supremacy. It does not rest upon a lack of intelligent appreciation of the necessity of meeting changing and changed

conditions of trade with new methods, nor upon ignorance of the fact that combination of capital and effort to accomplish great things is necessary when the world's progress is demanding that great things be done. It is bottomed upon sincere conviction that combination and concentration, while not to be prohibited, is to be controlled, and in my judgment this conviction is right.

These great combinations, now numbering thousands, are the instrumentalities of modern commercial activity. Their number and size alone appall no healthy American. We are accustomed to large things and to do them in a large way. We are accustomed to speak with a justifiable pride of our great institutions and what we have fairly accomplished through them. No right thinking man desires to impair the efficiency of the great corporations as instrumentalities of national commercial development. Because they are great and prosperous is no sufficient reason for their destruction. If that greatness and prosperity are not the result of the defiance of the natural rights or recorded will of the people, there is no just cause of complaint.

That there are evils and abuses in trust promotions, purposes, organizations, methods, management, and effects none questions except those who have profited by those evils. That all or any of these abuses are to be found in every large organization called a trust no one would assert who valued his reputation for sane judgment.

The conspicuous noxious features of trusts existent and possible are these: Overcapitalization, lack of publicity of operation, discrimination in prices to destroy competition, insufficient personal responsibility of officers and directors for corporate management, tendency to monopoly and lack of appreciation in the management of their relations to the people, for whose benefit they are permitted to exist. Overcapitalization is the chief of these and the source from which the minor ones flow. It is the possibility of overcapitalization that furnishes the opportunities for most of the others. Overcapitalization does not mean large capitalization or capitalization adequate for the greatest undertakings. It is the imposition upon an undertaking of a liability without a

corresponding asset to represent it. Therefore overcapitalization is a fraud upon those who contribute the real capital either originally or by purchase, and the efforts to realize dividends thereon from operations is a fraudulent imposition of a burden upon the public. When a property worth a million dollars upon all the sober tests of value is capitalized at five millions and sold to the public, it is rational to assume that its purchasers will exert every effort to keep its earnings up to the basis of their capitalization. When the inevitable depression comes, wages must be reduced, prices enhanced, or dividends foregone. As prices are naturally not increased but lowered in dull periods, it usually resolves itself into a question of wages or dividends.

While this condition may exist under any circumstances, it is exaggerated by overcapitalization in the illustrating case five to one. The overcapitalization securities enter into the general budget of the country, are bought and sold, rise and fall, and they fluctuate between wider ranges, and are more sensitive in proportion as they are further removed from intrinsic values, and, in short, are liable to be storm centers of financial disturbances of far-reaching consequence. They also, in the same proportion, increase the temptation to mismanagement and manipulation by corporate administrators.

Corporations and joint stock or other associations, depending upon any statutory law for their existence or privileges, trading beyond their own state, should be required to do business in every state and locality upon precisely the same terms and conditions. There should be no discrimination in prices; no preferences in service. Such corporations serving the public as carriers and in similar capacities should be compelled to keep the avenues of commerce free and open to all upon the same terms and to observe the law as to its injunctions against stifling competition. Moreover, corporations upon which the people depend for the necessaries of life should be required to conduct their business so as regularly and reasonably to supply the public needs. They should be subject to visitorial supervision, and full and accurate information as to their operations should be made regularly at reasonable intervals. Secrecy in the conduct and results of

operation is unfair to the non-managing stockholders, and should, as well for reasons of state, be prohibited by law. If these serious evils were eradicated and a higher measure of administrative responsibility required in corporate officers, a long step would be taken toward allaying the reasonable apprehension that the unchecked aggression of the trusts will result in practical monopoly of the important business of the country.

Less difficulty is encountered in describing the mischief of trusts than in suggesting a rational and practical remedy.

The constitution provides (section 8, article 3): The congress shall have power to regulate commerce with foreign nations and among the several states and with the Indian tribes. Congress, July 2, 1890, enacted that every contract, combination in the form of a trust or otherwise, or conspiracy in restraint of trade or commerce among the several states is illegal, providing punishments and conferring jurisdiction upon federal circuit courts to prevent and restrain violations of the act. It was commonly supposed at the time of the passage of this act that its provisions forbade the existence of trusts that were engaged in monopolizing the production throughout the country of various articles of general consumption, and the government shared in this view. Action was begun by the United States against what was known as the sugar trust. This was a corporation of the state of New Jersey, which had acquired the stock of a number of sugar refining corporations in another state by an exchange of its own shares for the shares of the vending stockholders of those companies. It was formed, as its charter stated, for the purpose of "buying, manufacturing, refining, and selling sugar in different parts of the country."

The government's contention was that the purpose of the purchase was to acquire a substantial monopoly of sugar refining, and as the product was for sale and distribution among the states and to foreign countries, that the arrangement was a violation of the law cited. The contract challenged was one vesting in the trust the last of the independent refineries but one in the United States, thereby giving it the almost complete monopoly of a necessary of life. Its control

was 98 per cent of the whole. The Supreme court decided that as the monopoly was in the production or manufacture of sugar, and its sale or distribution among the states and to foreign countries was but incidental thereto, it was not within the prohibition of the law, saying that manufacturing, although it precedes commerce, is not a part of it, and that the act only applied to restraints of commerce.

This distinction is easily understood when it is recollected that commerce means intercourse, transmission, communication, transportation; and commerce among the states, the regulation of which rests in the federal power, means, as the term implies, that this intercourse shall be between or among the states. Manufacturing, on the other hand, does not imply or necessitate intercourse among the states, but implies a situs or place for its operations. In a subsequent case the government destroyed a combination known as the Addyston Pipe combination, but upon the ground that it was a conspiracy among independent producers of pipe to restrain its sale and distribution among the states. The combination in this case operated directly upon interstate commerce.

These cases seem to define the scope of the anti-trust law and show how little there is now left for the statute to operate upon. It is not enough, it seems, that a trust or corporation owning corporations exists, or that it is engaged in interstate or foreign commerce, for its mere engaging in commerce is not prohibited, or that it monopolizes production throughout the country, or that it is formed to restrain or monopolize business within a state, or destroys competition in buying or selling within a state, or that by any of these things it indirectly affects interstate commerce with a practical restraint or monopoly, to bring the corporation or its particular transaction within the emphatic clauses or under the drastic penalties of the anti-trust law. What seems to be necessary is to establish by legal proof in court a combination for the direct monopolizing or restraining of what is strictly interstate commerce, and to prove this against combinations whose affairs are conducted upon the best legal advice as to what is and what is not obnoxious to the law, by methods secret or ingeniously contrived to avoid the letter of the law.

I want to call attention to this law, not in a spirit of criticism, but to show you clearly how far it went and where it stopped. It undertook to invalidate all attempts to monopolize interstate commerce, which includes, among other things mentioned, transportation, but it did not invalidate monopolies of production or regulate commerce in such a way as to free it from the restraints such monopolies directly impose. The court did not say that these indirect effects upon interstate commerce could not be prevented by congress. It is earnestly contended by many that as it stands this law expresses the limit of federal power in that direction. But has not congress the power by its regulation to protect commerce between the states from being restrained by state corporations and combinations engaged in interstate trade, when their purpose or effort is to destroy the freedom of such interstate trade, and when their operations are besides injurious to the general public? Regulation under such a power would not interfere with mere production or the power of the state over production. It would only affect them remotely and incidentally, just as a monopoly that produces all or most of a certain line of goods affects commerce indirectly. If it be true that a state can authorize or permit a monopoly of production within its borders because it has the power over production as such, although it indirectly affects interstate commerce, may not the United States regulate interstate commerce, over which it has exclusive control, even though it indirectly affects production, over which, as such, it has no control?

If congress, under its power to regulate interstate commerce, may utterly destroy a combination and forfeit its property in interstate transit, as the Sherman act provides, because it restrains such commerce, it seems reasonable to say that it can in the exercise of the same power deny to a combination whose life it cannot reach the privilege of engaging in interstate commerce, except upon such terms as congress may prescribe to protect that commerce from restraint. Such a regulation would operate directly upon commerce and only indirectly upon the instrumentalities and operations of production.

If the Sherman act exhausts the power of congress over monopolies, the American people find themselves hopelessly impotent, facing a situation fraught with the most alarming possibilities, with which neither the federal nor state governments can deal. While states may regulate the production and sale of articles within their own borders, at these borders their authority ceases. Jefferson, in his letter of March 15, 1789, to Madison, says of the constitution: "This instrument forms us into one state as to certain objects, and gives us a legislative and executive body for those objects." One hundred years later the Supreme court of the United States declared "that in the matter of interstate commerce the United States are but one country, and are and must be subject to one system of regulations, and not to a multitude of systems."

These are illuminating and vital statements of the original purpose in founding this government to provide for national control of intercourse and of the extent of the national power over it. These statements were made, respectively, by that great leader of the constructive period who was most jealous for the reserved rights of the states against the encroachment of the new national sovereignty and by one of the wisest judges who have interpreted the constitution's purposes and meaning. In the light of such statements, then, can it be possible that the people of the United States, feeling the pressure of undoubted evils, are nevertheless totally powerless? Is it true that although they know with growing certainty the nature of the wrong and are seeking a remedy, the constitution as it stands does not permit them to pursue it; that amendment to that charter is first necessary; that the power of congress does not now extend over detriments injuring the entire body of citizens in their most vital concerns because these detriments originate in the states, although the states in the aggregate, and by the co-operation which is essential, do nothing effective to remove them? I do not believe that we find ourselves so helpless. When the currents of monopoly evil obviously flow out over state lines and cover the country, not only entering, but largely filling the channels of interstate and foreign trade, it will not do to say that the evil is beyond the national reach, and that because the first

step which may lead to the evil is production, which must have a fixed situs within a state, the states alone may deal with it.

If the states are a nation for some purposes, as Jefferson said, with full legislative and executive power, and exclusive regulation of interstate commerce is one of these purposes, as the Supreme court has decided, it would seem monstrous to urge that congress and the executive under its authority are powerless and must sit idly by and see the channels of interstate commerce made use of to the injury of the people by monopolistic combinations. Plainly the power must reside somewhere, either in the nation or in the states' reservations; but the effect of present doubts is to create a dilemma under which, apparently, all power vanishes, the states saying, some of us do and some of us do not approve or permit monopolistic production; that is our concern, but when the products cross our borders the problem passes beyond us and becomes a matter of national regulation and control; and the nation appearing to reply, I can deal with commerce passing beyond any one state, but effective regulation here may indirectly interfere with production, and that is a state matter which I may not touch. And so the national and local sovereignties halt and the delictum escapes. The Supreme court has characterized the power of congress to regulate interstate commerce, like the related and sometimes auxiliary power to tax, in terms broad and absolute; it has defined this commerce in language which is inclusive of all phases of interstate intercourse, exchange, and trade; it has merely said that production, under an initial phase of modern consolidations which primarily, at least, regards production alone, is not such commerce. I do not think it can be said that the court has gone beyond this point.

Conceding that the present law is not effective throughout the situation, we come to the final alternative: May not congress, under the existing constitutional grants, amend and extend the law, and thus remedy its defects and so effectively regulate national and foreign commerce as to prevent the stifling of competition, the regulating of output and price, and the restraining of national and international trade? If

the answer to this question should be in the affirmative, a second question follows: How might congress so amend the present law?

I do not scruple to say that in my judgment the more a thoughtful mind reflects on the first question, the more unhesitatingly will an affirmative answer be returned. That regulation by congress in this way would indirectly or remotely affect production would be no bar. The very point of the sugar trust case was that a consolidated scheme of production might lead to commerce, or might indirectly or remotely affect commerce, but did not for that reason invoke the federal power over commerce; and the illustration from the converse of the situation is significant on the point just stated. Congress under this power prevents the importation or transportation of articles deemed injurious to the general welfare. Thus the laws subject the movement of explosives to safeguards and burdens, absolutely excludes impure literature and diseased cattle, convicts and contract labor, and scrutinizes and prevents or checks many foreign and interstate movements, throughout the entire field of international and national intercourse, in the interest of all the people, on grounds of commercial, hygienic, or ethical policy. Who shall set limits now, in advance of a carefully framed and judicially tested law, to the competence of congress to regulate commerce in the way suggested in the exercise of the legislative wisdom and in the wide discretion confided to it? Who shall say that the power of congress does not extend so far? I think it does. I am quite sure no one can now say that it does not. Every constitutional question is an open one until it is authoritatively closed by a decision of the Supreme court.

And now a word as to what has been undertaken and accomplished under many and peculiar embarrassments in the way of executing existing laws.

In 1904 it came to the knowledge of the president that great railway systems in the middle west, upon which every section of the country is dependent for the movement of breadstuffs, had entered into unlawful agreements to transport the shipments of a few favored grain buyers at rates much below

the tariff charges imposed upon smaller dealers and the general public. This injustice prevailed to such an extent and for so long a time that most of the smaller shippers had been driven from the field, and the business formerly enjoyed by them absorbed by a limited number of persons, who received secret and preferential rates. In a word, there was practically only one buyer on each railway system, and the illegal advantages he secured from the carrier gave him a monopoly of the grain trade on the line with which his secret compact was made.

In the earlier period of this discriminating practice it is probably true that the producer obtained a price for his grain slightly in excess of its market value at the place of shipment; but that result followed only during the short time that the non-favored dealer continued in business. When he was forced to the wall, as he soon was, the only buyer whom the producer could reach was the party who had bargained with the carrier for an unlawful trade. Thus competition in the grain business was destroyed and the price actually realized by the farmer was frequently less than the proper market value. A favored middleman, by connivance with the railroad, monopolized the grain products of a large area of country, and virtually fixed the price both to the producer and the consumer.

It was an odious condition. Nor does this describe the full measure of wrongdoing. It reached the centers of trade and affected related industries with more or less disaster. In Kansas City, for example, it was asserted that local dealers had been excluded from participation in the grain trade; that their elevators for the storage and transshipment of grain, built at great expense for the demands of an important market, had been deprived of business, and that large numbers of laborers had lost employment and remained in idleness, solely because of the diversion of business from its natural channels as the result of this forbidden monopoly in the purchase and transportation of grain.

The board of trade of that city presented a complaint to the interstate commerce commission, and that body conducted an investigation which disclosed, with convincing particularity and detail, the facts already summarized. That

they are true in substance and effect is not seriously disputed in any quarter. The commission also, about the same time, held another investigation, and reported to the department of justice that the six largest meat packing concerns, popularly known as the "beef trust," were in a combination with each other and with many great railway lines, whereby they secured large secret concessions in rates for the transportation of their products which enabled them to practically monopolize the fresh and cured meat industry of the United States.

Acting upon this information, which disclosed definite and probable facts, bills for injunctions were immediately filed against the principal railroads implicated, to restrain them from giving preference to any shipper in the rates or facilities of transportation. There were instituted by the government in the United States Circuit court at Chicago, six suits in equity against offending railroad companies; and simultaneously, eight additional suits were begun against other railroads at Kansas City. In each instance temporary injunctions were granted, which are still in force, restraining the defendant railroads from paying any rebates or granting any preferences whatever to any shipper, so that all persons should stand on an even footing in respect of transportation over the enjoined roads.

It was not practicable, of course, nor desirable to bring injunction suits against all the railroads in the United States, but it was believed, in thus proceeding against fourteen of the most influential lines and having the interlocutory decree of two very eminent federal judges to the effect that the facts alleged in the bills entitled the government to the powerful remedy of injunction, that the other carriers would thereafter conform to the law and abstain from illegal practices. How salutary and wholesome the effect has been ask any fair-minded railway manager who is now enabled to adjust his business freed from the stress of competition with lawbreakers or any honest shipper upon the defendant roads. It is believed that with few exceptions since the issuing of these injunctions the open tariffs have been applied and uniform rates charged to large and small shippers alike. The small grain buyers in the west have resumed operations, the elevators

that were closed are doing a profitable business, and the workmen are again employed.

Another direction in which kindred effort has been made to enforce the law and prevent the abuse of monopoly deserves a word of comment. The cotton interests of the south, growers, buyers, and shippers, complained of the hardships and injury suffered by them from the methods of the railroads in that section in handling and transporting the cotton output. These carriers by combined action denied the right of routing to the shippers—that is to say, the right of the shippers to prescribe over what route his goods should pass, and by agreement with each other determined the lines which should move this important product and the percentage of total shipments which each line should transport. In other words, there was a pooling arrangement between the railroads in respect of this traffic, in distinct violation of the federal statute.

As the result of information, secured with much difficulty, respecting this forbidden practice, a number of indictments were obtained against the offending roads and their principal traffic officers. At first the indicted carriers showed an intention to continue their unlawful combination, and steps were taken by the department to institute similar prosecutions against the same and other carriers for like misconduct at other points in the cotton section. Since that time, however, the roads have receded from their position. They now accord to shippers the right to route their traffic, and avow their purpose strictly to observe the law.

The remarkable advance in the price of meats, coupled with the disclosures elicited by the commission respecting secret rebates enjoyed by the great packing houses, and other information obtained by the department of justice, induced it to direct an investigation into the methods of the so-called "beef trust," as a result of which bills were filed under the Sherman anti-trust law and injunctions issued restraining each of the six defendant concerns from combining or agreeing upon the prices at which they would sell their products in states other than those where it is prepared for market, and likewise restraining them from combining and agreeing upon cartage charges for delivering their shipments at destination.

The Northern Pacific and Great Northern railroads, having their eastern termini at the head of Lake Superior, and extending westwardly via Minneapolis and St. Paul to the Pacific ocean, occasionally intersecting and again separating, and generally no farther distant from each other than 100 miles, and being in 1901 practically the only competitors in the transportation of traffic to and from most of the states traversed by them, combined together and purchased the capital stock of the Chicago, Burlington & Quincy railroad system. Thus those two transcontinental lines became the joint owners of another great system which was gradually pushing its rails northwesterly into the territory occupied by the purchasers, and westwardly to the Pacific ocean.

To effect this purchase the Northern Pacific and Great Northern companies issued joint bonds for $200,000,000. Shortly after the purchase of the Burlington road the principal owners of the Northern Pacific and Great Northern roads caused to be organized, under the laws of New Jersey, the Northern Securities company, with a nominal capital of $400,000,000, of which $30,000 was paid in. That company was organized to become the owner of the capital stock of the Northern Pacific and Great Northern railroad companies, and this was accomplished by an exchange of the stock of the New Jersey corporation for the stock of the two railroad companies at such a price that, if the securities company got all of the stock of both roads, its entire $400,000,000 of capital would be absorbed in the exchange.

At the time of the purchase of the Burlington road the capital stock of the three railroad systems was about $390,000,000. That was the capital upon which the combined traffic carried by those roads might, after paying expenses of operation, reasonably be expected to provide dividends. By the bond issue to secure the Burlington and the inflation of the "securities" capital that same traffic was expected to provide dividends upon more than two hundred millions of stock in addition to the original $390,000,000.

When the department of justice came into possession of these facts a suit in equity was at once begun to restrain the operation of the proposed merger and to restore the independ-

ence of these transcontinental railroads as competing lines. The United States Supreme court sustained the department's contention and ordered the Northern Securities company dissolved.

Here, then, are four phases of the attack on combinations in restraint of trade and commerce—the railroad injunction suits, the cotton pool cases, the "beef trust" cases, and the Northern Securities case. The first relates to the monopoly produced by secret and preferential rates for railroad transportation; the second to railroad traffic pooling; the third to a combination of independent corporations to fix and maintain extortionate prices for meats, and the fourth to a corporation organized to merge into itself the control of parallel and competing lines of railroad and eliminate competition in their rates of transportation.

There appears to be no doubt of the facts as set out in the bills filed in these various cases. The combinations proceeded against are in some respects different from those considered in cases that have been decided by the Supreme court, and it is said by their organizers that they have avoided the prohibitions of the anti-trust law. The department of justice, being of opinion that they are each in violation of that law, found it to be its manifest duty to so advise the president, with the result which is known to all.

My whole purpose in what I have said is to challenge the proposition that we are hopelessly helpless under our system of government to deal with serious problems which confront us in respect to our greatest interests. Since the radical questions of human rights and human governments have been settled, the production, preservation, and distribution of wealth receive the chief attention of civilized peoples.

The extent to which legislative control over commercial activities should be exercised is, of course, a question for legislative wisdom. We have the experience of the other nations to guide us in determining how far the delicate and mysterious rules of trade can be interfered with by positive statutes without injury. That experience teaches us that the least interference consistent with the preservation of essential rights

should exist. Arbitrary regulations that restrain free intercourse are usually found to be unwise.

Primarily it is for the congress to decide whether it has the power, and whether and to what extent it will execute it —what character of restraints, whether all or those only which are unreasonable and injurious shall fall under the ban, whether legislation in the first instance should extend to all commerce or only to commerce in articles of vital importance to the people. The time never was when the English-speaking people permitted the articles necessary for their existence to be monopolized or controlled, and all devices to that end found condemnation in the body of their laws. The great English judges pronounced that such manifestations of human avarice required no statute to declare their unlawfulness, that they were crimes against common law—that is, against common right.

It is difficult to improve upon the great unwritten code known as the common law. Under its salutary guaranties and restraints the English-speaking people have attained their wealth and power. It condemns monopoly, and contracts in restraint of trade as well. The distinction, however, between restraints that are reasonable in view of all the circumstances and those which are unreasonable, is recognized and has been followed in this country by the courts. This distinction makes a rule that may be practically applied, and preserves the rational mean between unrestrained commerce and the absolute freedom of contract. A law regulating interstate commerce for its protection against restraint, so broad as to cover all persons whose business is conducted under agreements which are in any way or to any extent in restraint of trade, might exclude thousands of small concerns conducting industries in one state from marketing their products in others; but a law which only covers contracts and combinations in restraint of trade as defined by the common law would exclude all hurtful combinations and conspiracies. Congress can, if it sees fit, adopt the scheme of that law. In the enforcement of such law each case as it arose would be considered upon its own facts, and the rule of guidance would be as laid down by the Supreme court of the United States—that is, "public welfare

is first considered, and if it be not involved and the restraint upon one party is no greater than protection to the other party requires, the contract may be sustained. The question is whether, under the particular circumstances of the case and the nature of the particular contract involved in it, the contract is or is not reasonable.

Let me give an illustration showing the difference between a reasonable and unreasonable arrangement or contract at common law. First, as to a reasonable one:

The case of a sale of a business and its good will is a good illustration. Here a restricted covenant upon the part of the vender not to engage in competition in a similar business is often the main consideration for the transaction. This covenant is, of course, in restraint of trade and interferes with competition. But to make a contract such as this illegal is not only restrictive of the liberty of contract, but it is depriving one of his property without due process of law. Good will is property capable of being appraised, bought, and sold. In many cases it is the main ingredient of value. It represents all the struggle, industry, tact, and judgment that makes success. In estimating the worth of a business it is not infrequently reckoned more valuable than the buildings and machinery that make up the physical plant. Such a contract has been held reasonable and valid.

Now as to an unreasonable agreement, let me quote an illustration from the pen of a justice of the Supreme court:

In Morris Run Coal company vs. Barclay Coal company (in the Supreme court of Pennsylvania) the principal question was as to the validity of a contract made between five coal corporations of Pennsylvania, by which they divided between themselves two coal regions of which they had the control. The referee in the case found that those companies acquired under their arrangement the power to control the entire market for bituminous coal in the northern part of the state, and their combination was, therefore, a restraint upon trade and against public policy. In response to the suggestion that the real purpose of the combination was to lessen expenses, to advance the quality of coal, and to deliver it in the markets intended

to be supplied in the best order to the consumer, the Supreme court of Pennsylvania said:

"This is denied by the defendants, but it seems to us it is immaterial whether these positions are sustained or not. Admitting their correctness, it does not follow that these advantages redeem the contract from the obnoxious effects so strikingly presented by the referee. The important fact is that these companies control this immense coal field; that it is the great source of supply of bituminous coal to the state of New York and large territories westward; that by this contract they control the price of coal in this extensive market, and make it bring sums it would not command if left to the natural laws of trade; that it concerns an article of prime necessity for many uses; that its operation is general in this large region, and affects all who use coal as a fuel, and this is accomplished by a combination of all the companies engaged in this branch of business in the large region where they operate. The combination is wide in scope, general in its influence, and injurious in effects. These being its features, the contract is against public policy, illegal, and, therefore, void."

The question of reasonableness is thus one for the courts to determine, and it is manifest that this doctrine gives play to just considerations of the freedom and inviolability of contracts with proper judicial safeguards against unconscionable arrangements rightly void as contrary to public policy. The Sherman act is entitled "an act to protect trade and commerce against unlawful restraints," etc., and the able dissenting opinion in one of the leading cases in the Supreme court argues from this indication and other considerations that the restraints intended to be stricken off were only those unreasonable restraints as defined at common law. But the law was authoritatively decided to include all restraints, whether reasonable or unreasonable. Nevertheless, in extending the law it might be deemed wise by congress not to import and impose this distinction clearly, for the following reasons among others: Because the hard and fast extreme rule may work injustice in various instances where a moderate restraint is either not harmful at all to the general interests, or only slightly so in comparison with the importance of the

freedom and sacredness of many contracts which public policy does not manifestly condemn; because the question of reasonableness, as in the common law, should be for the courts—surely the safest arbiter and reliance in human disputes—and because, from the economic standpoint, freer play would thus be given, and perhaps "a way out" indicated, in the conflict between the important principles of free competition and combination.

We have no certain knowledge of the nature and effect of the natural laws which are carrying forward evolution in economic and social phenomena as in all other branches of biology. But we may be confident that in some sort and with whatever perversions, public policies, constitutional charters of government, and municipal laws roughly manifest these natural laws and reflect their main tendencies. Proper free play of forces might be maintained, by importing into the situation the idea of "reasonableness" and judicial determination thereof, for the control of unnecessarily destructive competition; and, for preventing the opposite danger, by devising a system of regulation which would strike the evils of combination at the heart and aid in the great object of restraining hurtful restraints and monopolies, especially as to the prime necessities of life.

The conditions of our commercial life are, as I have said, the result in part of an evolution of forces of world-wide operation. They have developed gradually and are not, perhaps, fully understood. Laws regulating and controlling their operation, before they ripen into a complete system of wise jurisprudence, will be of gradual growth.

HOW CONGRESS MAY CONTROL TRUSTS.

BY JEREMIAH W. JENKS.

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It is generally conceded that state action to control trusts is and must be ineffective owing to differing laws in separate states. Congress, in the Sherman anti-trust law, has taken one step toward their control. The best legal authorities who have given special study to the question are of the opinion that, without constitutional amendment, congress may now take further positive and effective action. The question remains, What action is wisest? Three important suggestions have been made; we attempt to weigh briefly their relative merits.

1. Attorney General Knox made a notable address at Pittsburg, in which, with the acumen as well as the caution of a great lawyer, he told what the present government had done in restraining trusts, and indicated in general terms what more congress might do. He seems to have amplified the views of the president. Although his recommendations were not specific, his suggestions seem to mean this:

(a) Under the Sherman act it has been decided that combinations in restraint of interstate commerce, whether reasonable or unreasonable, are illegal and punishable. In his judgment—and in this judgment most thoughtful men since the decision in the Addyston Pipe case agree—it is wise to permit any partial or even complete restraints of trade that are in their nature reasonable, while punishing severely those that are unreasonable. The courts, as under the com-

mon law, should determine what is reasonable and what is unreasonable.

(b) His chief recommendation, however, looks toward extension of the scope of the Sherman anti-trust act. Following a line of argument parallel with that used by Mr. F. J. Stimson and Prof. E. W. Huffcut, as found in the reports of the United States industrial commission, he expresses the opinion that congress has the power to lay down the conditions under which corporations may engage in interstate commerce, and to prescribe penalties for the violation of such conditions. The constitutional power seems to be clear; but he does not state categorically what conditions he would impose. The implication in his address, however, from the evils enumerated and from the principles discussed, is that corporations doing an interstate business ought to be required (1) "to do business in every state and locality upon precisely the same terms and conditions. There should be no discriminations in prices, no preferences in service." (2) They should be subject to "visitorial supervision;" secrecy in the conduct or result of their operations should be prohibited by law.

These conditions might be enforced only by penalties imposed by the courts after a violation of the act had been proved in a specific case brought by an injured party by a government attorney, as the Sherman anti-trust act is enforced. This plan would be conservative; it would leave the burden of proof on the prosecutor, and probably would not be generally effective. It would, however, be certain, in course of time, to give us some extremely important decisions and indications for further action. Congress might, however, following the plan of several states in dealing with insurance companies, partly shift the burden by providing that before any corporation engaged in interstate traffic it should procure a permit or license from some authority duly established in the act (a bureau of the new department of commerce, an officer of the treasury, or otherwise). It would then regularly furnish such information regarding its business as the law demanded; it could be regularly inspected to enforce compliance with the conditions laid down; and any corporation engaging in interstate commerce without such license would be

at once subject to penalty. The conditions could be made whatever congress deemed wise. The important conditions named by the attorney general which might be enforced by either of the methods mentioned merit consideration from the economic as well as from the legal point of view.

1. The publicity implied in the words "visitorial supervision" is a remedy which has been long and ably advocated, and beyond question, if it could be properly enforced, would be very serviceable. The corporations, however, which most abuse their power would make every effort to evade such supervision, and, as appears later, in many cases such evasion would be easy.

2. Discrimination in prices between different customers for the purpose of crushing rivals and strengthening monopoly, as Professor Clark, of Columbia university, has ably shown, is of three kinds: First, the great corporation sells at ruinously low rates in localities where rivals are at work, while recouping itself for the loss by demanding high prices elsewhere; second, with many kinds of products at its disposition, while its smaller rival has only one or two classes, it may, to destroy the rival, make ruinously low though everywhere uniform prices for these specific classes, while keeping high prices on its other products; in the third place, it may grant especially favorable terms to those purchasers who buy only its goods. It is perhaps too much to say that it is impossible to stop these practices, but any one who knows business will realize that it is extremely difficult to stop any of them, especially the second

Moreover, it is not absolutely clear that they should be stopped; such discriminations may at times be beneficial to society. A rival of a great combination often makes its way by giving special rates on certain articles used as leaders and by discriminations among customers. The principle of discrimination in freight rates on railroads, it is generally conceded, is evil, but railroads are natural monopolies. It is useless to talk of encouraging competition among them. On the other hand, the so-called trusts are in industries which are normally competitive, and we wish to keep them so. If, then, rivals in competitive trade against the great corporations

get their start by special rates to individual customers and by making leaders of individual articles, to compel them to sell to all customers at the same rate is against free competition, as the word is ordinarily used. Will the limitation of free action harm most the trust or its rival?

A small flouring mill in southern New York sells flour, let us say, in its own town, in Owego and Elmira, N. Y., in Wilkesbarre and Scranton, Pa., and in Phillipsburg and Dover, N. J. It is engaged in interstate commerce. It must sell in face of the competition of the great Minneapolis mills and of the so-called flour trust. Freight rates from Minneapolis are substantially the same to all these points; in them all flour of the same brand sells at practically the same price. The local New York miller must meet these prices, freights included. In consequence, as his freights differ, he sells to each town at a different rate. His profits from each differ. He does not sell to all at the same rate and then add the freight, as does his great rival. If the law of no discrimination is enforced on him in the same way as on the trust—and the law cannot be a respecter of persons—he is confined to his local New York market, cannot sell enough to keep his mill running, and stops. The act indicated, rigidly enforced, would close hundreds of small mills in all sections of the country, and would stop thousands of men in other lines. Yet possibly this may be a less evil than discriminations of the trusts. We must, however, not blink the fact that in many individual cases such a law may strengthen instead of weaken the trust. It would be a practical impossibility for any executive body to grant exceptions in special cases. The shippers are altogether too numerous. It is also true that a law forbidding discriminations, as well as one requiring publicity, can be easily evaded. It is impossible in many cases to get evidence. But direct methods of evasion are also even now employed.

It is proposed to make these laws apply only to interstate commerce. A manufacturing corporation as such, however large, is not engaged in interstate commerce. It is at times, even now, the custom for a great manufacturing corporation, in order to evade a state law against combinations, to sell its

goods in the first place to a subordinate corporation or to a co-working individual, who then transfers them to real purchasers. This second corporation might, of course, be so organized as to be perfectly ready and willing to meet any conditions, that of publicity or non-discriminations or otherwise, without in any way opening the gate for inspection or knowledge of the workings of the really monopolistic manufacturing corporation. It would even be possible, if desirable, for a separate corporation to be formed for the selling work of each several state, as has often been suggested. Of course it is possible that the courts might hold in individual cases that this method had been adopted simply for the purpose of evading the law, and that for the purpose of that case the transaction should be considered one. It is scarcely probable, however, that this would be held unless in very rare instances where the evidence was absolutely clear; and if the separate corporations were organized and managed with entirely separate accounts, as could readily be done, it does not at present appear how the United States courts would obtain by compulsion the jurisdiction necessary for the effective carrying out of the law. The law would be still more difficult of enforcement if the intermediate selling agent were a natural person and not a corporation. Similar difficulties would apparently be encountered in the enforcement of the law suggested in a bill just introduced by Senator Cullom which bars the transportation of trust made products from one state to another.

(2) This brings us to the discussion of the second remedy. The plan is to impose a tax upon corporations or individuals engaged in interstate commerce, and thereby to secure a supervisory control of such business. While there would doubtless be difficulty in imposing a direct tax, it seems to be the universal opinion among the most competent students that a franchise tax, or, to use another expression, a license tax, as a condition preliminary to engaging in interstate commerce, would be clearly constitutional. The act of imposing a tax shows most strikingly the power of a government, and the courts have been inclined, when a tax is in itself constitutional, to give to the executive all the power needed to en-

force the tax. Were a franchise or license tax imposed annually in proportion to, let us say, the net receipts from interstate business, the investigation of the business of each corporation would be of necessity so thorough that the government would readily obtain all the knowledge necessary for holding the corporations rigidly to legal action, and for prescribing what seemed to be wise measures for future control.

In order to obtain these results, the tax need not be heavy enough to be at all burdensome, although it would be of such a nature that it might readily be made to yield a large income in case of need, or even to impose positive limitations in any direction desired if that should become necessary. The tax might probably even be devised so as directly to check stockwatering. The most important factor, however, would be that when the machinery for the imposition and collection of the tax was once thoroughly in order, the government would have in readiness a power which could readily be adapted to the needs of the case. It would naturally be enforced by a bureau as indicated above, in connection with the plan of the attorney general. Were the tax made compulsory and burdensome, efforts to evade it and the difficulty of finding interstate commerce would be of the nature of those indicated in the first plan; but here again, as in the preceding case, the decisions of the courts would ultimately doubtless be of great assistance; and if the corporations were compelled to secure first their permit, evasion of the law would be more difficult. Such a tax would fit well into our general scheme of taxation, and would be a useful balance wheel in our entire revenue system. The line of court decisions certain to be made within a comparatively short time would aid congress in future legislation. If need be, eventually the tax itself might be a means of control.

(3) A third plan is the federal incorporation of corporations engaged in interstate commerce. This plan again is in line with both plans preceding, but is one step further. There seems to be little doubt that it would be constitutional. Should congress make a corporation law too burdensome or rigid, the manufacturing corporations would not organize

under it. If it were made compulsory, they would employ every device to avoid doing interstate business, and comparatively little would be accomplished. Should congress, on the other hand, make a law of such a nature that it would be advantageous for corporations to organize under it, the result would be quite different. The chief objections that have been made to the plan are:

(a) That it would bring about a high degree of centralization in all of our important business, and that it would, by the transference of much business from the state courts, grievously overburden our federal judiciary; and

(b) That were congress to propose the enactment of such a law, the influence of the corporations would be such that the law, when made, instead of being restrictive, would probably be even more liberal than our present state laws. The corporations, then, instead of being under better control, would be practically placed beyond control.

If in such a federal corporation act, following the precedent of the national banking act, provision were made, if necessary, that suits might be brought in either federal or state courts, there need be, and probably there would be, no great increase in the activity or power of our federal courts. If congress were to follow the precedents already established with reference to corporations in Porto Rico and in the case of the national banks, its law would probably not be too liberal. It would be made of necessity under the pressure of an awakened public opinion, and attempts to give too great privileges would probably be checked. Such a law, if passed, should provide for a high degree of publicity as regards the organization and management of corporations, should impose rigid provisions regarding capitalization and management, and might readily, if it seemed wise, forbid discriminations in prices or make any other conditions that seemed reasonable.

Compulsory severe legislation is always hard to enforce. In the present difficult case it would be extremely desirable so to legislate as to put on the side of the law the great corporations which are trying to do a fair, honorable business, which is in the public interest (the "good trusts"), while stop-

ping the evils of the others. An attractive measure would be to combine with the rigid restrictions above mentioned, which would destroy many if not most of the evils, a provision that federal corporations should be exempt from state taxation except as to property actually situated within the several states. Now the large corporations fear and oppose and evade state corporation taxes. The variations and complications arising from different systems are troublesome; in many cases lawyers say, probably with some exaggeration, that corporations are subject to "strike" bills and to blackmail where discretion is left with minor officials. They would be willing to pay a federal tax even heavier than their present taxes if it were alike on all and fairly and honestly levied. Such an exemption provision—and possibly others which might check too hostile legislation by separate states—might easily prove so attractive that the sound corporations would readily organize under the law and aid in its just enforcement. A federal corporation law, if enacted, should certainly at first be made permissive rather than mandatory. There would thus be no danger of a revolution in business; the courts and the business community would adapt themselves gradually to the new line of organization. If the law were reasonable, even though very strict, the best corporations would come under it at once. The others would soon feel the pressure of public disapproval, if the federal law were distinctly the best. If experience showed that it were necessary to extend the scope of the act, though that is not probable, it would be comparatively easy later on to force, by taxation or otherwise, other state corporations engaged in interstate traffic to incorporate under it.

The three plans indicated are not contradictory; they are rather progressive along the same line. Either act could be passed alone, or all of them might be passed together. If the first law discussed were enacted, it would doubtless give us valuable experience and decisions, and would be, with the exception of one point, a distinct step in advance, possibly all that should be taken at first. But, so far as has appeared, it is practically entirely compulsory in its nature, and could be readily evaded. The other two measures seem more drastic, and doubtless would be more rigid in many ways;

but, on the other hand, the last, at any rate, might contain provisions which would remove the hostility of the better class of corporations, which would then themselves readily aid in the enforcement of the law, while if it were made optional, even if combined with the others, there certainly could be no charge of action which was hostile to the interests of capital legitimately invested and properly employed for the welfare of the public.

THE WORK OF THE PROMOTER.

BY EDWARD SHERWOOD MEADE.

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Every week of the year deposits of minerals are discovered, franchises are obtained, patents are granted. Railway extensions are constantly bringing land, timber and coal into the market—increasing population offers a basis for water, light and transportation plants. New inventions stimulate new wants and these wants in their turn produce new means of satisfaction. The field for investment, either in new enterprises, or in the extension and diversification of established industries, is infinitely various. To take but one field, the production of power, we find a vast range of opportunity for profitable investment. We have first of all the mechanical draft and the mechanical stoke, the use of superheated steam to reduce condensation, the inside firing boiler to prevent radiation through the fire box, the steam turbine to utilize the direct pressure of steam, and the various devices which purify the water before it goes into the boiler, and to cleanse it for future use by condensing the exhaust steam. In other divisions of the field of power we have the development of electrical power transmission, which is bringing into the field of investment a large number of water powers which until recently were worthless and wasted, and we have the general introduction of the gas engine which promises not only to solve the question of the small power plant, but to double the efficiency of coal by using it in two forms, coke and gas. In other fields similar opportunities are multiplying. Improvements long since discovered are forcing themselves into general notice. New improvements are attracting instant attention. Never before in the world's industrial

history has man increased his conquest over nature at such a rapid rate and simultaneously in so many fields.

These opportunities for production of wealth are opportunities for the investment of money, since the investment of money is, in the vast majority of cases, either directly or indirectly the production of wealth. The investor buys $50,000 of railway bonds. With the proceeds the railroad replaces a wooden trestle with a steel bridge. Over this bridge it can run a heavier train load, which it obtains by the lower rate which the decrease in operating cost resulting from that heavier train load makes possible. The lower rate enables the farmer to turn a part of his grazing land into wheat, and so eventually and indirectly the $50,000 which was invested in the railway bonds has increased the supply of wheat on the world's market. This increased production of wealth, therefore, was made possible by the purchase of the bonds which the investor bought; because of its increased earnings the railroad could pay him 4 per cent. Without the investment of money increased production would be impossible. Upon the investor rests the responsibility of increasing the wealth of the world. As he directs his funds, this way or that, to railroads, cotton mills, irrigation or shipbuilding, the productive energy of society is exerted in this or that field of enterprise.

This office of investment is variously performed. Men may invest or capitalize their own savings. The farmer devotes $1,000, half the proceeds of his last wheat crop, to the purchase of nitrate fertilizer. The New England cotton manufacturer invests his surplus earnings in a South Carolina mill where cheap power, labor and material invite development. The Bessemer steelmaker adds an open hearth furnace to his equipment and takes advantage of a large supply of scrap iron. The Pennsylvania coal operator or lumberman buys the cheap coal and timber land of the south. Every producer is continually devoting his surplus funds to enlarge his enterprise along lines with which he is familar as the opportunity presents for greater profits or as competition forces. He may occasionally branch out into other fields, as when the farmers of a locality erect a flourmill or sawmill or open a

stone quarry, or where the carriage maker goes into the manufacture of automobiles, or a railroad may spend a portion of its surplus in purchasing a coal property along its line. In these investments, producers extend their business out of their profits and with their own funds. More new wealth is produced by this form of investment than by any other. Every industry is constantly growing from within, as the biologists would say, by intussusception, out of the profits of the past, the individual producers are making innumerable ventures of their money into untried fields in enterprises where they alone stand to win or to lose, and where they act from personal knowledge of the opportunity.

A second class of investors there is, which may include the members of the first class, but who are actuated by different motives and who act in a different way. These are also in possession of surplus funds from the employment of which they wish to obtain a profit and they are ready to buy the stock of any corporation which gives them an assurance of satisfactory return. They are in the market for any securities which they consider to be a safe and profitable investment. The members of this class are not, as a rule, in close touch with the industries whose securities they buy. A leather merchant invests in steel, a banker in railroads, a retail dealer in mining stock, not usually because he desires to identify himself with the business in which he invests, so far as to give it his close personal attention and to assist in its management, but solely that he may share in its profits. Included in this class are all investment institutions and managers of trust funds, who take no active part whatever in the numerous enterprises whose securities they hold. The importance of this vicarious interest in industry is steadily increasing, as production is carried on on a larger scale, and as it therefore becomes increasingly difficult for a few men to combine a sufficient amount of capital for the inauguration of a new enterprise, or the development of an enterprise already established. Twenty years ago timber was readily accessible and a few thousand dollars would build a sawmill. A half dozen farmers, by combining their savings, could start in the lumber business. To-day, a well equipped sawmill may cost $100,-

000 and added to this must be the expense of perhaps twenty miles of railroad to reach the timber. The assistance of outside capital is becoming every year more essential to the development of any industry or the exploitation of any resource.

The proprietors of this outside capital, as we just now observed, know little or nothing about the technical aspects of the industries into which they put their money. They are acquainted with these industries merely as sources of profit. If they can be given satisfactory assurances that profits will be forthcoming from a proposed development, they are willing to invest money to that end. They will not, however, devote themselves to searching out and preparing the propositions into which, when once discovered and prepared, they are willing to put their money. This attitude of mind of the general investor necessitates the promoter. The promoter, then, is the man who discovers and "assembles" the proposition for the investor, who then, if satisfied with the prospect of profit, provides the fund for its development. The promoter may be, and not infrequently is himself engaged in the industry which he proposes to extend or to develop in some other locality. In this case, his proposals are more favorably regarded by the investor who justly considers that the promoter is well qualified to judge of the merits of the proposition. Mr. John W. Gates, who was associated almost from the beginning with the wire industry of the United States, was a promoter of this class. In projecting the Federal Steel company and the American Steel and Wire company, he spoke with the voice of authority. On the other hand, and this is more often the case, the promoter may not be particularly conversant with the practical and technical affairs of the industry. The limitations of practical knowledge may be illustrated by those promoters who make a specialty of certain lines of industry, for example, street railways. A successful street railway promoter will usually have a very keen and trained judgment regarding street railway statistics. He will know the exact percentage which operating expenses ought to bear to total income under given conditions, and of the cost per mile for running cars, and he will be able to analyze with

intelligence the statistics of operation and construction, but beyond this he would be unlikely to have any practical knowledge, relying upon the judgment and estimates of reputable engineers to supplement his more general information. William H. Moore, for example, who has within recent years promoted several large steel corporations, is understood to have had but little practical knowledge of the steel industry. The professional promoter, and it is with him that this study is chiefly concerned, in forming his judgment, relies largely upon the trained judgment of experts, civil, mining, mechanical or electrical engineers, lumber viewers, chemists, geologists, metallurgists, machinists. These experts, whose income depends upon their accuracy, give him the necessary technical information about the proposition which he has in mind. They tell him if the coal seam is regular or faulted, if the proposed operation will be self draining or if pumping machinery must be installed, if the coal is high or low in sulphur and silicon, whether it will make a strong or a weak coke, or if designed for steam purposes, whether it will be high or low in ash. The professional promoter in the course of his business, and from his association with technical experts, must necessarily accumulate a great store of information, and his ability to make a technical judgment should constantly increase, but if he is in the promoting business, it is next to impossible that he should master all the sciences whose conclusions are put at his service by the experts whom he employs, and whose opinions he relies upon as an aid to convincing the investor.

Given the technical information, there remains the field where the promoter must rely more largely upon his own ability, the financial aspect of the proposition. Will it pay? In the case of a coal mining proposition, he must determine the price per acre at which the land can be purchased, the rates of freight which will be charged and the price which can be obtained at the different markets. He must consider the labor conditions of the region, the laws of the state regulating the company store, the attitude of the railroads toward an independent enterprise. To spend but a moment upon this last point as illustrating the supreme importance of the pro-

moter's judgment—if his property is located on competing lines, he can look for substantial concessions in rates, but on the other hand, he knows that these favorable rates may flood the markets with low priced coal in which there is small profit. If he has the facilities of a single line, he must consider whether either the company or its officials are interested in coal properties whose product will compete with his own, in which event in a slack market, his car supply may be suddenly abbreviated. He may also take into account the holdings in this road by another coal road in its bearing upon differentials. All these and a number of other points, the promoter will take into account in forming his judgment as to the probable success of his enterprise; he will be the more careful if he has a record of successful enterprises to strengthen his appeal to the investor.

Having formed a favorable judgment, having "discovered" the proposition, the promoter now proceeds to "assemble" it. To this end, he must either purchase or secure the right to purchase within a fixed time and at a fixed price the property or privilege which he has determined to exploit, whether mine, patent, timberland or franchise. As a general rule, the method of option is the one usually followed as involving a smaller outlay of cash by the promoter, and implying a smaller loss in case his flotation should be unsuccessful. To continue our illustration: The promoter wishes to purchase 5,000 acres of coal land owned by perhaps fifty farmers. He goes into the district usually armed with a certificate of reputability in the form of a local celebrity at $2.50 per day and expenses paid, and visits these farmers at their homes. He presents his purpose to them, assures them that he will be able to raise the money to develop his proposition, and asks them, for the sake of their mutual interest, and for a nominal consideration in hand paid, to sell him an option to purchase their property at any time within six months, at a price of say, $20 per acre. Various arguments may be employed to influence a general assent to this proposition. The landowners may be shown that the value of the surface soil which will remain in their possession after the transfer of the coal, will be increased by the demands which a coal mining community

will make for the produce of their farms. They may be offered the advantage of a railway which the opening of coal mines will bring. The hopelessness of developing their own property may be pointed out to them, and as a last resort the promoter may threaten to "sew them up" by refusing to transport their coal over his roads. By employing these or similar arguments, the promoter persuades the farmers to option or "lease" their land. As far as possible he keeps each owner in ignorance of the terms offered to his neighbors; a general diffusion of such information would cause a general raising of prices. In dealing with the well-to-do and intelligent farmers, he must often pay a high price for the option; the price named in the instrument is also high. The promoter submits to these onerous terms not merely because he wants the land of these hard bargainers who know just how indispensable their coal is to him, but also because he desires to use their names and influence with other owners. These higher prices are recovered in dealing with the more ignorant landowners who are greatly impressed with the representations of the promoter, and also by the fact that their richer neighbors have joined the scheme. It may even be necessary for the promoter to employ a little coercion in the way of an alliance with the general storekeeper who may hold chattel mortgages and judgment notes against the recalcitrant, powerful arguments when skillfully employed.

The promoter has now "assembled" his proposition. The owners have obligated themselves to sell to him at a price until the expiration of six months. He knows exactly how much the land will cost him and he has the land under control. The next thing is to "float" it, that is to say, to raise the money necessary to develop it. To this end, the promoter forms a corporation whose capitalization, if he is a conservative man, will be based on the probable earning power of the property, say $100 per acre or $500,000 of stock. This stock, to reserve the special details of the flotation to the discussion of the trust, he succeeds in placing at fifty cents on the dollar before the six months of his option have expired, either with investors who wish to hold the stock, or with bankers and financiers who expect to sell at an advance. The

investor and the banker purchase the stock because they have confidence in the promoter's judgment, and are therefore influenced by his representations that the proposed undertaking will prove profitable. They may take the trouble to examine the expert reports on the property and will probably visit it under the guidance of experts. Their inquiries, however, are necessarily superficial, and they buy the stock either on the representation of the promoter or of some friend or banking associate in whose judgment they have confidence and who may have gone into the scheme on his own account.

Out of the $250,000 which he realizes by the sale of stock, the promoter pays $100,000 for the land, $75,000 for development and working capital, and either puts the $75,000 remaining into his own pocket or divides it with the financial interests who have assisted him by advances. The foregoing represents a typical promotion. Similar enterprises are constantly being floated throughout the country, not only on mines, but on real estate, manufacturing enterprises, on patents, water power, irrigation, timber and a great variety of resources. The details of each may vary from the form presented, but the essential principles are the same: (1) the securing of a right to purchase an opportunity to make money; (2) the capitalization of that opportunity at a higher figure than the price to be paid the original owner plus the funds required for development; and (3) the sale of this capitalization to the investor either directly or through the agency of middlemen for a sum of money exceeding the amount necessary to purchase and develop the resource which it is intended to exploit. This difference represents the promoter's profit, the characteristic feature of corporation financiering.

What now has the promoter done to entitle him to this large profit? He has produced no coal; that is done by the company to which he turns over his options. Neither has he risked an amount of money in any way comparable to the profit which he has made. To obtain fifty options under the circumstances described may not have required an outlay of more than $5,000, and this is an outside figure. Judged by the canons of what is generally considered to be legitimate money making, the promoter has done nothing to entitle him

to the $75,000 profit which, out of a flotation of this size, he frequently takes. And yet the profits of the promoter are as legitimate as are the profits of any of the more familiar professions. The promoter is a creator of value. He brings into existence a means of producing wealth which did not before exist. By combining the control of a number of separate pieces of coal property into a fully equipped coal mining enterprise, he is able to offer to the investor an opportunity to earn say 12 per cent on his money; in other words, to sell to the investor $500,000 worth of stock which can be depended on to pay dividends of 6 per cent, for $250,000. Without this combination, in the hands of individual owners, without transportation facilities, and without modern equipment, the value of this coal, based on its earning power from the small openings which produce for the local trade, did not exceed $20 per acre. Combined under one ownership, connected with a trunk line railroad, and equipped for large operations, a value of $100 per acre is not excessive. This increase in value of $80 per acre is the result of the investment of $35 per acre—$20 in the purchase of the coal and $15 in its development. In order to obtain the money necessary to purchase and develop his proposition, the promoter has been obliged to sell the opportunity which he controls at one half its real value, i.e., at $50 per acre. Deducting the $35 which must be spent to put the coal on the market, there remains $15 per acre, or in all, $75,000 as the promoter's profit, a profit differing in no essential feature from the gains of the manufacturer who contracts ahead for his pig iron and takes advantage of a rise in the nail or wire market.

But it may be objected, why should the promoter be allowed to make this large profit? Why should it not be divided between the farmer who owns the land and the investor who furnishes the money? What is the justification for the promoter's profit? The answer to these questions lies in the nature of the transaction. The promoter is entitled to his profit because he has optioned coal at the value which its owners placed upon it, and has sold his rights to another set of persons who place upon these rights a much higher value. The farmers, except in exceptional instances,

could not even organize their own proposition, much less finance it. Mutual jealousies, local feuds, and overmuch mutual information about the character and financial standing of local individuals who might undertake this work, would interfere with any general agreement. It would be found, for example, next to impossible to agree upon the proper price for different pieces of coal. Farmer A, whose land lies near the creek would insist upon a higher value for his property than Farmer B, whose coal is less accessible, while B, on his part, might cite, as a reason for disputing the justice of A's claim, the fact that his coal had been opened in several places while nobody knew that A had any coal on his property. Farmer C, who owned land across the right of way of the proposed railroad, and who, therefore, considered his co-operation indispensable, might insist upon a price of $150 per acre, which would probably disgruntle his less favored and jealous neighbors and so defeat the scheme. The Brown family might refuse to go into any agreement with the Jones family, with whom one of the chiefs of the Brown clan has had a lawsuit of some years' standing. Any one of a number of similar causes which might be cited would be sufficient to prevent the concentration of control of these separate properties, which are of small value unless combined. Some one interest acting exclusively for its own advantage and dealing independently with each owner, is essential to the assembling of such a proposition. This interest may be local, and, as already noted, by means of local alliances, the task of the promoter is made easier, but in most cases, the successful coal promoter is the outsider who can pose as the man of wealth and connection, and who can reap his harvest of options during the pleasant weather of a first impression. It is the general experience of promoters that an outsider of imposing personality, pleasing address and experience in handling men, has usually much greater success in securing options than even a local squire or other celebrity whose standing in the community is of the best, but who is too well known to be allowed by his neighbors to make any money out of their property.

Even if the farmers succeeded in getting their proposition together in the control of a selected committee or individual,

they would have great difficulty in securing a financial connection. They would have to provide for expert reports on the property, and then to open negotiations with some financial interest with whom none of their members would probably be personally acquainted. After securing an introduction, they would present their proposition, probably in a lame and halting manner, which would not show that they possessed a comprehensive knowledge of the importance of the property in question to the general coal market. If the banker to whom they would naturally apply for funds, since they would have no connection with the investing public, was sufficiently interested to examine the proposition and to determine its value, he might take one of two ways to further his own advantage. He could either prolong the negotiations until the local contingent lost heart and withdrew, trusting to his own ability to obtain the options for himself, or he could compel the representatives of the owners co-operating to accept a price not greatly exceeding the face of their options, in which event, the financier would be the promoter one stage removed, and acting by deputy. It is evident, therefore, that the promoter's profits on such propositions cannot be saved for the original owners of the coal. It is the same with any other proposition. The proprietor of undeveloped opportunity is seldom in position to bargain to advantage for its sale. His best course is to put his property in the control of some promoter at a fixed price and for a definite time, contenting himself with effecting a sale not at a price which he thinks the property is worth, but the price which will represent a fair return on his investment of brains or money. Any attempt on his part to promote his own scheme will probably end in failure. The failure of inventors to make more out of the sale of their patents is probably due more than to any other cause, to the fact that they insist upon an excessive interest for themselves and are unwilling to offer sufficient inducements to those who might otherwise be disposed to promote their schemes.

As for the investor participating in the promoter's profits, this, in the nature of the case, is impossible. The investor is looking for a security which will produce as large an income

as is consistent with the safety of his principal. As shown above, he is not likely to concern himself with the active management of those industries into which he puts his money. How much less likely is he therefore, to abandon his regular business or profession to roam about the country in search of resources to develop. The investor of necessity assumes a receptive attitude. He is the customer to whom the promoter and the financier offer their wares. He buys on his opinion not so much of the merits of the proposition as to the reputation of those who offer it for sale. Even if the promoter should be compelled to take a profit of only $10,000 instead of $75,000 and should be required by law to leave $75,000 additional in the property, the investor would get no benefit. Suppose that this should be done and note the consequences to the investor. We must assume that the enterprise has been fully equipped with machinery and working capital, and with experienced and responsible promoters; in this class of propositions this assumption would be generally correct. We must assume, that is to say, that out of our 5,000 acres of coal land, a well managed company is able to earn one year with another, $50,000 per year, 10 per cent on the capital stock, by an investment of $175,000. The law, however, compels the promoter to invest $65,000 more for the benefit of the company. This might be done in enlarging the scope of the enterprise, taking in more land and working a second shaft. The result of these enlarged operations, since the same equipment could handle a larger output, might be a total annual profit of perhaps $90,000 per year on the same capitalization as before, viz., $500,000, or 18 per cent. If the investor would pay—allowing the banker his profit—70 for a 10 per cent security which the profit of $50,000 represented, he will pay 126 for an 18 per cent security, represented by the larger profit of $70,000 due to the sequestration for the benefit of the company of the promoter's surplus. On the first investment, allowing the promoter to take what remains after the proposition is fully equipped, the investor receives an income of 14.2 per cent, and on the second investment, he receives the same amount, for the price which he will pay for the stock rises with the rate of dividend which it yields. The investor therefore could not profit by the curtailment of the

profits of the promoter. The only result of such action would be that the net earnings and dividends of the company would be increased. The investor, however, would receive the same rate of income from investing $1,000 in a 10 per cent stock at 70, as he would receive from $1,000 invested in an 18 per cent stock at 126. It is true that the community might be the gainer because a larger amount of coal might be produced from the larger investment. This conclusion, however, rests upon two assumptions: First, that the original plans of the promoter were not large enough, since he could probably have capitalized his enterprise at $900,000 instead of $500,000 in case he considered that market and mining conditions warranted the larger output of coal and, that the promoter will make an ineffective and wasteful use of the $75,000 profit which he takes out of the enterprise and will not employ these funds in furthering new enterprises to which he may turn his attention. Neither of these assumptions is apparently well grounded. The promoter has, it is safe to say, if he is a conservative and intelligent man, provided for as large a production as is warranted by the conditions surrounding the enterprise, and if his profits appear large, they are usually turned back into new ventures whose success will increase the wealth of the community. We must conclude, therefore, that the promoter performs an indispensable function in the community by discovering, formulating and assembling the business propositions by whose development the wealth of society is increased. He acts as the middleman or intermediary between the man with money to invest in securities and the man with undeveloped property to sell for money. In the present scheme of production, the resource and the money are useless apart. Let them be brought together and wealth is the result. In most cases, the unassisted coincidence of investment funds with investment opportunities is wholly fortuitous and uncertain. The investor and the land or patent or mine owner have few things in common. Left to themselves they would never meet. But the promoter brings these antithetical elements together; in this way utilities are created which did not before exist, and which are none the less a social gain because most of the advantage is taken over by the promoter and the financier.

THE CAPTAIN OF INDUSTRY AND HIS LIEUTENANTS.

BY W. R. LAWSON.

[W. R. Lawson, a London journalist, came to the United States several years ago and in behalf of the London Daily News made an investigation of the industrial situation in this country; he had previously made similar investigations of Spain and Germany; Mr. Lawson's shrewd observations were quoted so widely that a demand arose for their publication in book form and the resulting volume "American Industrial Problems" is regarded in England as a standard book on its subject.]

The unquestionably strong point in American industry is its organization. It admits of discussion whether the American workman under equal conditions is more efficient than the British workman, but there can be little doubt that the United States is exceptionally well provided with organizers of every kind. They abound in all the staple industries as well as in every important branch of commerce. How they come to be so plentiful is a question which so far has received comparatively little study. It is in the stage which admits only of tentative suggestions and not of a definitive solution.

There are three special schools for teaching organization—war, mining, and railroading. In each and all of these schools the present generation of Americans have had a severe training. A very large remnant of both the northern and southern armies of the civil war still survives. The generals and colonels, whom it trained by hundreds, as soon as the war was over hastened back to civil life. They became distinguished railroaders, financiers, manufacturers, and merchants. The rough virtues they acquired in camp served them well in business, and this element, though on the decline, is still strong enough to give a decided tone to commercial life. Military spirit continues to show itself in very odd ways.

Immediately after the Civil war a new school of discipline and of organizing power was thrown open to Americans in the mining camps of the far west. There was much more got out of the Comstock lode than mere gold or silver. The old timers who went through that experience, whether they

became millionaires, like Flood and Mackay, or remained poor men, derived from it a splendid education. Subsequently they spread all over the west, and everywhere they proved themselves men of ready resource and strong character. Many of them became managers of large mines and presidents of mining companies. They are to be met with to-day in every important mining district, and most of them can be recognized at once by their quiet, authoritative way of doing things. They can keep their finger on an army of ignorant Hungarian, Swedish, and Italian workmen as if they were children. It is a sort of magnetic power they appear to have acquired through sheer force of governing. However turbulent and unruly the men might be in weaker hands, they recognize strength and dominant will when they feel them. They also know when a firm hand is on the reins, making it useless to kick or grumble.

Managers and mining captains of that stamp are all born organizers. Likewise they are as a rule competent experts in their special line. As such they know their business from beginning to end. To them it is a huge machine, every wheel of which they understand and every movement they can anticipate. The writer has met in the far west several notable examples of this class of manager—the organizing expert. He has a vivid recollection of one in particular—a sinewy silent Cornishman whom he encountered one day on the Mesaba range. He had two mines in his charge, the second being twenty miles away on a different iron ore formation. Both were turning out six or eight hundred tons of ore per day, and employing about six hundred men. Chance threw us in the way of the silent but keen-sighted manager as he was going his daily round of the shaft heads and the various workshops.

He drove up in a strong but light buggy without any groom or attendant. First he had a look at the ore wagons coming up the shaft to see what kind of ore was being taken out. From them he passed on to the "breakers" at the pit head, where the ore is broken, sized, and classified. Thence to the engine house, the machine shop, the air compressor, and finally to the offices. In each place he walked quietly

round, asking a question here, making a suggestion there; now examining a new rock drill, now watching some experiment or other. Having been years underground himself, and through every department of the work above ground, he knew at a glance when things were right. From end to end he had planned the whole establishment, and in more senses than one was its master. His rule was firm but just, and even liberal. It extended not only over the mine but over the adjoining town in which the men lived. Every cottage belonged to the company; so did the schools, the town hall, and the free library. All were under the manager's rule, tempered in some cases with the help of a committee. Above ground and below the whole place was a model of organization. In the long series of operations one succeeded another with perfect regularity, until the ore was shot into the immense ore cars and started off for its shipping place on Lake Superior, where it dropped out of the cars into ore bins, and from the bins was run into lake steamers.

What this kind of mine manager may do is to be seen not only in the western states but in many other parts of the world. It was conspicuously exemplified on the Rand goldfield at a critical period of its history. At the opening up of the Rand many costly mistakes had been made by the self styled mining engineers, who always turn up in crowds on such occasions and exploit them much to their own advantage and the corresponding loss of their employers. The original movement had in consequence collapsed, and it remained in discredit until Cecil Rhodes had the happy thought of calling in some American experts. It is needless to recall the wonderful transformation they effected. Amateur muddlings were replaced by scientific methods. Cheap inefficient plant was cleared out to make room for machinery that would work. Order and system were brought out of chaos. Profits began to appear where hitherto there had been monthly deficits. The Rand was, in a word, reorganized, or rather it was organized for the first time.

The present generation of Americans contains a larger number of great organizers than were ever simultaneously at work before. They have distinguished themselves as railroad

builders, President Hill of the Great Northern, for example; as iron and steel makers, witness Mr. Carnegie; as manufacturers, like Mr. Havemeyer of the sugar trust; as traders, like Mr. Rockefeller of the Standard Oil company; and as rulers, like President Roosevelt. In the methods of these various masters there may be room for criticism, but in one thing they agree—they are all of the Napoleonic breed. There is among them a combination of mind, strong intellect, keen insight, and rare patience. The imagination which sees far ahead is united in them to keen grasp of the smallest details. The two opposite qualities of brilliant conception and careful execution are equally strong in them. They have, in short, the gifts both of the ideal and the practical organizer. Some eminent men have possessed one or other of these, but their union in the same man is exceptional.

In whatever other respect the great captains of industry may differ, they are all hard workers. Work becomes a passion with them, and they stick to it day and night, either from sheer love of it or absolute necessity. Their grand organization, the offspring of their brain, generally swallows them up in the end. It becomes so fascinating, and demands from them such incessant attention, that they get little rest unless they tear themselves away from it altogether. Mr. Carnegie gave his whole life to his monumental works at Pittsburg until he was sixty years of age and then retired altogether, feeling perhaps that there was no middle course. Scores of American organizers have gone through the same martyrdom before. The railroad presidents, financiers, and business men of all kinds who have killed themselves by overwork would fill a very long list.

A supreme organizer must necessarily be a hard worker. It is one of the essential conditions of his rôle. The organization has not only to be planned, but it has to be established—to be built up day by day and year by year, to be watched and tended like a child to see that nothing goes wrong with it, to be modified as occasion requires, and readapted to every change of condition. Only a very hard and enthusiastic worker need put his hand to a plough of that sort, for there is no turning back without absolute ruin. One of the reasons for

the present dearth of great organizers in England may be that the passion for hard work has, to a large extent, died out. The heroic age of industrial enterprise seems to be past, and Englishmen have settled down to a régime of joint stock old fogeyism. Whatever occult merits the joint stock system may have, rapidity of action can hardly be claimed as one of them. Where all initiative is concentrated in a board of directors, not one of whom may have any technical knowledge, movements are sure to be slow. In the United States that obvious drawback is guarded against by having a strong executive distinct from the directorate, and in all technical matters independent of it. The directors are, as a rule, advisory only, and the executive power has a free hand. There is consequently scope for organization, and organizers have all the opportunities they need. They are eagerly looked for, and when found they receive every kind of encouragement, from hundred-thousand-dollar salaries to special audiences of the German emperor.

In comparing the very different rates of speed at which most kinds of engineering work are done in the United States and in Great Britain, it will be found that all the fault is not with the workmen. On our railways, for instance, directors, managers, engineers, and officials of every grade move much more slowly than they would have to do on the other side of the Atlantic. Any one who has an opportunity to see how railway extension is carried out here must be amused at the leisurely character of the proceeding. A spur line of four or five miles, which an American engineer would put through in as many weeks, will easily spread over a season or two on an English railway. A twenty mile stretch will be years old before it has run the gauntlet of directors, select committees, engineers, draughtsmen, and contractors. In these days of international yacht races and polo matches we should like to hear of an American railroad company challenging an English company to a friendly competition in railway building—say fifty miles, to be as near as possible alike in grades, contour, and nature of ground. This would be a most instructive trial of organizing skill on both sides. The British and the American methods of doing such work would be clearly

exemplified in it. We fear that the American competitor would come out well ahead, not only as regards speed but in his general handling of the job. He would prove himself in every way a superior organizer and a more resourceful engineer.

We have been reluctantly driven to this conclusion by observation of the English and American systems. For an English example we take a piece of work now actually progressing—if we may correctly use such a term—on a western section of one of our main lines. It is a very simple straightforward job, but the country is too lonely for the engineering staff. They have selected a lively seaside town about twenty miles away for their headquarters. It is on a branch line of their own railway, with very few trains, and they have to change trains both going and coming. After a not too early breakfast they catch a slow train, put in half an hour at the junction station, and reach the scene of their labors about an hour more or less before midday. This kid glove sort of railway building would be an excellent joke out west. There the engineering staff would in a similar case have a private car allotted to them, and they would live beside their work till it was finished. The rougher the country the greater hurry they would be in to get away from it. But anyhow they would put in a full day's work every day.

The American organizer always has subordinates, because he insists on having them. He looks about for them till he finds them, and when he gets the right men he binds them to him by putting them in the way of advancement. If there be a born organizer among them he too gets his chance sooner or later. Wherever there are the makings of a man, of a great mechanic or an able administrator, of an inventor or a financier, they are sure to rise to the surface among these seventy odd million Americans. In other countries they might die unhonored and unsung,—in fact undiscovered,—but there is little danger of such a fate in the United States. The passion for doing big things is so universal in all branches of American activity that every eye is strained in that direction, and every success is hailed with national acclamation. It makes little difference what the big thing may be—whether a political, a commercial, or a dramatic success. On that point the

Americans are very catholic minded. They can go into ecstasies one day over the latest arrived billionaire, the next over a base ball team, and the next over an Admiral Dewey, or a "cowboy president." But he must always be a man, and the most popular sort of man he can be is a great organizer. There can be nothing big without special organization, and though the craze for bigness may be in itself rather laughable, it is also the possible parent of a great virtue. European critics of the American people have perhaps overlooked, or at least underrated, this fact. If they were less active, less ambitious, and less given to rustling, they might better suit our phlegmatic British temperament; but how much would they lose of their practical genius, their gift of generally having the right man for the place, and the proper tool for their work?

The lieutenant of the captain of industry is the boss. The "boss" is an American institution. Both the term and the thing are transatlantic. When the Americans boast of the large amount of work got out of their workmen they do not often explain how it is done. If they were to do so the boss would figure considerably in the explanation. He is the man who sees that everything is kept running at full speed. A highly organized system of surveillance covers the whole field of American industry. This may sound incompatible with popular notions of the land of freedom, but it is the fact. And when understood it will be found in the main quite justifiable. In judging a matter of this sort we have to remember the immense diversity of American labor,—the fact that it has many grades, is of many nationalities, and speaks many tongues. Though highly skilled at the top, the mass of unskilled labor below is enormous. Much of it is not merely unskilled, but ignorant and half civilized. It has to be taught as well as superintended. A sharp eye has to be kept on it all the time, and that is the function of the boss, who occurs in a great variety of forms and characters.

In American labor the boss is ubiquitous. He corresponds to the ganger of a squad of navvies; to the foreman in an engineering shop; to the head of a department in a city warehouse; to the shop walker in Oxford street or Holborn; to the manager of a factory; to the superintendent of a railway

division; to the chief of a government office,—in short, to any person exercising direct authority over others and acting as watchdog toward them. We have him in England under many different names, but he is never quite the same boss. With us he is a more or less lenient taskmaster, a casual visitor rather than a supervisor. In his higher forms he is a gentleman, or has to try to be, which is destructive of vigilance and efficiency. There is no boss so strict as an Irishman lording it over half a dozen other Irishmen. The Americans begin with him, and rise through a long gradation of authority to the boss with thousands of men at his call. Be the sphere large or small, the authority is absolute. A man may "turn up his job" at any moment, but while he is on it he must obey his boss as implicitly as a soldier in the ranks.

In going through any large establishment in the United States a close observer cannot fail to be struck by the order and discipline maintained. Every man appears to be in his place and to be attending to his duty. Every machine is going at high speed, and the whole establishment runs smoothly. If one stops in the street to watch the progress of any large job—the building of a skyscraper, the laying of a street railway, or the excavation of a sewer—he will receive the same kind of impression. The work appears to be proceeding on a general plan. It is well laid out, and a vigilant eye seems to be over the whole of it. Close by every gang of laborers may be seen a foreman. Dodging about all over the place are keen looking men, who may be engineers or superintendents. What one seldom or never sees is skulking or dawdling. There is no leaning on shovels or studying the passers-by or any other form of philosophic meditation permitted on an American job. Above all, there is no eleven o'clock beer or four o'clock beer. The boss has everywhere a strong objection to beer. On duty it is strictly tabooed, and even off duty it is discouraged.

British trade unionists often complain of the shop rules laid down by their employers, but they will not know what rules are till they have been to the land of freedom. Neither can they have any idea of the possibilities of supervision. The writer has seen iron mines on Lake Superior, employing

six or seven hundred men each, where teetotalism was strictly enforced. The miners had all to live in villages belonging to the company in which not a single public house was permitted. They had instead large temperance halls where amusements and soft drinks were provided for the whole population. They had free libraries and bath rooms, recreation grounds, and small gardens if they wanted them. To Scandinavians or Hungarians, fresh from their old world dirt and discomfort, these model villages by the shores of Lake Superior should be a paradise. So far they have exercised a restraining charm on their rough inhabitants, but it remains to be seen how long the charm will last. Just now it has zealous and enthusiastic managers behind it whose personal example goes a long way. How it will fare under less zealous and vigilant disciplinarians is another matter.

Considering the chronic scarcity of labor and the pressing demand for it all over the west, it is a marvel how the severe discipline enforced can be maintained. In the railroad service it is particularly strong, and ever growing stronger; nevertheless it is quietly submitted to. For a locomotive driver to be seen in a saloon, whether on or off duty, would mean a bad mark against him. To be seen a second time would produce a sharp warning from the boss of his division, and a third offence would be fatal. The same rule applies to firemen, and in a slighter degree to all the rest of the train crew—conductors, brakemen, etc. Even clerks and other employees unconnected with the operation of the road have to be very shy of saloons and all other institutions of the kind, which if not expressly tabooed would not figure well in the confidential reports made periodically to the management on every employee. The careless maxim of some British masters, that their men can do what they like in their own time, is never heard in the United States.

American employers pay high wages and do not grudge them. On the contrary, next to making millions for themselves they love to be able to boast that American workmen are the best paid in the world. But high wages are not paid for nothing. The employer intends to get the best possible return for them, and the workmen admit that he is quite

within his rights in so doing. Both parties understand each other on the point. The personal authority of the American employer has always been greater than that of British employers, who as a class are more easy going. It has also been more directly and methodically exercised. An American workman is expected to give his very best service in return for his liberal pay. He has to keep himself fit for his work and to take a personal interest in it. He is paid for good conduct as well as for honest labor, and the employer is as exacting on the one point as on the other. There are found to be two ways of insuring an adequate return for high pay: one is for the employer himself "to keep close to his men all the time;" the other is to employ vicarious methods of supervision. In very large establishments only the vicarious method is possible, and this is where the boss comes in. His special duty is "to keep close to them all the time," and if need be he also has his deputies. He likes to know not only what the men are doing but what they are saying and thinking. No pains or expense is spared to keep in touch with them. If things are not going well in a shop special measures are taken to discover the cause. The great Pinkerton has a detective service for this express purpose. One of his men may be hired as a fitter or a mechanic, and he may be in the shop for months without exciting the least suspicion of his character. Every night he will send in a report of all he has seen or heard during the day. When the employer has got all the information he wants Pinkerton's man will quietly disappear from the shop and very probably from the district also.

If the means used be rather invidious, they are generally effective. Every suspected workman, especially if he be a trades union delegate, can thus be closely watched. If there be a strike brewing, the employer has early warning of it. If it be only a case of shirking or scamping, the proper remedy is soon applied. If the American employer had his way, shirking would soon be made impossible. He is down on it at the first scent. His motto is, that for every wrong there is a remedy, and the sooner it can be applied the better. For example, if a freight train gets into the habit of losing time

on the road and throwing out the whole of the train service, prompt action ensues. The division superintendent has his private car hitched on to the train and runs through with it. He finds out whether or not the delay is avoidable, and if avoidable, who is to blame for it. That is his method of bossing, and the men, independent as they may be in other respects, never object to it. They are not thin skinned and touchy as British railway men might be under similar circumstances. They frankly recognize that the boss is only doing his duty in seeing that they do theirs.

Another explanation may be suggested of the patience with which American workmen submit to a system of close supervision which at first glance may seem foreign to their national character. They have faith in its being justly exercised, and they know that the good workman is taken note of as well as the bad one. Thanks to it, men are unexpectedly raised from the ranks, and having got their feet on the lower rungs of the ladder they will have a fair chance to rise to the top. Such things rarely happen under England's happy-go-lucky régime, where if men are less closely looked after than in the states, they have all the more chance to be overlooked when promotions are going.

American employers find it pays to raise deserving men from the ranks. The best boss is invariably a man who has worked himself, and knows all the peculiarities and foibles of his class. An Irishman shines in bossing Swedes, Slavs, Dutchmen, or other "furriners." Making him a boss is often a cheap way to prevent him becoming a trades union leader, in which character he can be very troublesome indeed to his late employers. With philosophic impartiality the Irishman seems to be equally ready for either office, and he can fill both of them successfully. A large proportion of the bosses in the Pennsylvania coalfields are Irishmen, and a large proportion of the local leaders of the miner's union are of the same nationality. Cornishmen make good bosses for mining work. For skilled labor, as in engineering shops, Scotsmen answer better. They are to be found in all large establishments as foremen, head mechanics, and chief engineers. The native American comes in higher up as manager, superintendent,

or director. He brings education and science to his work, combined with business capacity. He has all the finer qualities of an ideal boss.

Whatever other gifts and advantages an American may have, he is not likely to reach the front rank unless he is also a first class boss—a born ruler of men. It would be difficult to mention a railroad builder, an ironmaster, or an engineer at the head of his profession who does not include that among his strong points; often they owe to it their first step upward. Somehow they will get men to do things for them which they would not do for an ordinary boss. They command their confidence, and never abuse it. Sometimes they consult them and get very useful suggestions for their pains. President Hill of the Great Northern railway, when he was pushing his road across to the Pacific, owed a good deal to magnetic influence discreetly exercised on his men. He knew most of them personally, and seized every chance of a few minutes' chat with them. They were encouraged to express their opinions about the road and its affairs, which were not always flattering. The engine drivers were valuable scouts, and Mr. Hill would often stroll into the engine stables and have a talk with any of them who chanced to be around. It was his way of "keeping close to the men all the time." Now his assistants do that for him, and find it still worth doing.

The boss is so interesting and important a figure in American industrial life that he would be seriously missed were he to disappear from it. At the same time, such an event is not at all impossible. Even now he may be in a state of transition, for the conditions which produced him are undergoing rapid change. The uneducated, half civilized foreign laborer over whom he lorded it so grandly is finding other rulers. He is being drawn into the sphere of influence of another boss, the trades union leader. Already a stubborn fight is being waged over him by the employers on the one hand and the trade unions on the other. There can be little doubt who will secure him in the end, and what use will be made of him. He is marked out as the spoil of the union leaders, and he will be a prize for them not industrially only but politically as well.

American employers are to-day fighting for independence—or, as they call it, "for the management of their own business." It is the same fight that British employers had to go through with the unions a few years ago, and from which they emerged if not complete victors with at least a moderate degree of success. They are now masters in their own homes, which many American employers are not. In the United States it is to be a harder battle than it was here, because on a larger scale and with a more doubtful prospect. The stake is also much greater in the United States than in our own case. It involves political as well as industrial mastery. The fact of their having their workmen so well in hand has been undoubtedly of great value to American employers, not only in the workshops but in other connections as well. It made them good voters as well as good workmen. But if they are going to break away in one capacity they may do it also in the other. There may be an electoral revolt combined with a labor revolt. In that case the reign of the boss would be over. With "walking delegates" coming and going all the time, and union rules drawn tighter every year, "bossing" as hitherto practiced would soon become impossible.

The change when it arrives will be bad for the masters, and in many ways for the men themselves. It will destroy the wonderful discipline and method which are the glory of American industry and the secret of its exceptional results. Neither the boss nor "Pinkerton's man" will have an easy life in the teeth of an organized labor party sending their own representatives to congress and having laws made for themselves instead of helping to make laws to suit their employers.

ENGINEERING IN INDUSTRIAL WORKS.

BY WILLIAM D. ENNIS.

[William D. Ennis, engineer; born in New Jersey in the early seventies; apprenticed to the Rogers Locomotive company; connected as engineer, salesman, and construction superintendent, with various works, including the Passaic Rolling Mill company, Walworth Construction and Supply company, Consolidated Gas company of New Jersey; graduate of the Stevens Institute of Technology; formerly engaged in private and associate practice in connection with the installation and economical operation of steam power plants; for some time located in the state of Washington in behalf of the Everett Pulp and Paper company, where he was engaged in modernizing the power equipment of that and of several allied industries; at present engineer to the American Linseed company. A frequent contributor to technical literature, British, American, and Continental, on subjects connected with steam and electrical engineering chemistry. The following article is from the Engineering Magazine, and is published by special arrangement.] Copyright 1901 by John R. Dunlap

The supreme control of industrial enterprises, including the general management of all phases from the purchase of supplies to the sale and delivery of finished product, is classically in the hands of the expert accountant. The line of promotion in the past has been usually from the bookkeepers' desk toward the higher chairs. An innovation was practiced, when instead of the clerk, the private secretary, or stenographer of higher degree, who of all others had opportunities to become familiar with the motives and methods of his chief, was marked as the legitimate successor of that chief.

A still more marked innovation has lately been evident. The managers of to-day are technicists. Engineers—mechanical and civil—make it their ambition to become, not consulting experts, but executives. Among military and naval cadets, the most brilliant and successful students enter the engineering corps of the service, and become in after years the most thorough and successful officers. The same tendency is pervading commercial life. To refer to a single one of the older American engineering colleges as an example—the Stevens institute of technology, in New Jersey, founded in 1872 by an engineer: of the 600 graduates prior to 1896, 230 (or 38 per cent) were in 1900 occupying positions not technical but executive. The functions of many others who fill nominally professional offices are in reality purely those of

management. The chief engineer of a large manufacturing company often becomes as little of an engineer (excepting in his methods) as his typewriter.

This state of affairs is becoming more and more prevalent. The managers of street railway, gas, electric lighting, and similar companies are, in the main, men of engineering training. The general management of broader manufacturing industries is being concentrated in the same direction. The departmental organization of commerce requires men who shall be, first of all, able executives; second, experts in the departmental work. In all excepting purely specialized branches—such as the legal or financial —use is being made of the trained engineer. Salesmen of mechanical goods, railway transportation department officials, and incumbents of many other apparently unrelated fields, are made from engineering timber. The highest executive positions in the great industries are accessible to men of mechanical training and common sense.

The United States are confronted with an era of industrial consolidation, of which we have thus far seen but the inception. A line of succession must sooner or later be established, leading to the posts of responsibility. These consolidations may properly be viewed as just so much labor saving machinery which, like similar developments of the past, have met with much unintelligent condemnation, and which have been rendered possible to no small extent, because of specialized engineering talent. Much of this is due to the almost invariable consequences of engineering training. It gives thoroughness first of all, for no progress is possible in mechanical operations without thorough mastery of each step. It gives a command of details. It develops a graphic habit of thought, an ability to picture abstract things, and to make mere conceptions real. It emphasizes the necessity of recording, transcribing, comparing, and perfecting one's observations until the elementary facts have been clearly sifted out and the basic principles mastered. And at no stage, especially if coupled with rational and competent scientific study, is it other than broadening to every faculty of the mind. More than all these, it creates the courage and ability to grapple with new

conditions with a confidence born of a thorough understanding of the natural laws involved, that unerringly define, limit, and control even uninvestigated phenomena.

The fundamental engineering concept is that of efficiency —the quotient of work performed by work imparted, of value by cost, of effect by cause. This concept is fundamental, not in engineering alone, but in every phase of business management. A cost keeping system may be never so accurate, but if it stops short at dollars and cents on record, it lacks life. Beyond this, where the analysis is of value only as a comparison, there is the question of what each particular cost should be, or the question of a theoretical efficiency toward which experimental efficiencies must constantly approach. It is not sufficient to insist that costs shall bear a constant ratio to output. The ratio under ideal conditions must be determined by calculation and should be gradually but steadily approached in practice by bringing about conditions resembling ideal ones. With a few conspicuous exceptions, neither the expert accountant nor the stenographer is qualified by his training to perform such calculations.

In the broadest sense, the efficiency of a manufacturing industry is equal to its receipts divided by its expenses. This industrial efficiency, is however, the product of the several efficiencies of the departments in entire production, in each of which there must be struck a balance between commodities furnished to and by it. With each department normal, the combined efficiency is normal; and an abnormal condition of things shown by the sum total can only be satisfactorily analyzed by one who can apply the touchstone of his own training and experience to the offending element. The three processes,—consumption, manufacture, disposition of product,—form two gaps for loss. Incompetent superintendence of plant makes the first element high, unintelligent sales keep the third element low, both in proportion to the second. To reduce both losses to normal (when that normal has once been ascertained) there must be quantitative knowledge of the operation of all three departments. This knowledge must consider not only the bulk of commodities in each, but their cost or value as well. The former data—consumption of raw

materials in pounds or feet, product in units of weight or measure, sales in gross—furnish a key to the efficiency of the department chief, the superintendent, and the salesman, respectively; but the cost of raw materials, the value of product, the profits on sales, are the measure of the individual competence of the purchasing agent, the manager, and the capitalist. Into the problem enter at least six factors of personal efficiency.

One of the first lessons in engineering training is that of continuity of records. The operation and economy of machinery must be measured from day to day—sometimes from hour to hour. Wastes must be anticipated, and prevented rather than cured. Possible economies must be perceived sufficiently in advance to permit of making the proper preparations to realize them. No possible training could be more typical of what is required from an executive head. The cost clerk discovers these things only after they have passed into history. His lessons are learned too late. If the engineer or superintendent is pre-eminently obtuse, the cost clerk may be able to tell him things that he has himself overlooked; but the average competent man of the former class will have gone through the battle and have gained his experience before the figures reach the office. He learns, as well, the tangible value of an experiment or a test. It may be worth a considerable loss merely to know and recognize the conditions which make for such loss.

In every industry, there must be an ability to retain a constant record of, and acquaintance with, the variations in efficiency. The yearly balance sheet is not sufficient. The economy of the plant must be known for each month, each week, and each day. This knowledge must include the consumption, production, and disposition, in units of quality and of value. The working day should not close without a calculation of what the record of that day has been, in every department. It is never impossible to obtain the data for such knowledge, although at times it may be expensive and a matter of some complication to do so. The system, if one of approximation, must be fair, so that consumption of raw materials can be apportioned pro rata with output without

injustice. It must be reasonably accurate, so as to agree with monthly cost statements; it must express and weigh all conditions affecting the data obtained. For comprehensiveness, simplicity, and accessibility, columns of figures cannot compare with graphic charts, such as the engineer uses in recording his experiments. These are sheets of ruled paper on which a small circle may be marked to represent the figure, in units of quantity or value, for the day. The horizontal intervals of the chart represent intervals of time, the vertical distances indicate amounts. The circles are joined by straight lines, forming a broken thread which offers at a glance a detailed history of the fluctuations of each item for the month or year as the size of the chart may permit. Such a diagram is familiar to every engineer; but its value to him, while great, is small in proportion to that which it may possess, under intelligent adaptation, to the man who must know quickly and accurately the entire structure and conduct of his business.

The engineer is taught to maintain and resort to his note book. Into this go his observations, experiments, rules, tables, and data. It grows in value from year to year. He finds in it records that save him useless experimentation and prolonged investigation of once tried suggestions. The executive, too, must have his note book, perhaps a thousand times more expensive, possibly less convenient. It may take the various forms of card indices, portfolios, scrapbooks, or filing cases; but if used as the engineer uses his records, it will save time and money. It will prevent simultaneous or repetitional empiricism in all the lines of industry under control. New methods and systems of production, new grades of material, new schemes of extension, new policies and announcements, can first of all pass inspection in the light of this collection of facts.

The most elaborate command of details is weak without rational classification. All the factors in the three assumed departments must be grouped with regard to quantity, cost, or value, relations with other commodities, and relations to totals. Revenue or expense must be credited or charged to the proper department, especially where there is an inter-

change of departmental services. Extraordinary revenues or expense (all outside of the purchase of supplies and the sale of product) should be justified by complete analytical figures and data, showing the causes and consequences, not only for memorandum, but as a possible factor in affecting the value of the plant and good will as an asset in trade. These methods of successful management are not dependent upon unusual talents or abilities, but rather upon high and rigidly-adhered-to ideals of conduct and usefulness. They involve a patience with and command of details; the ability to grasp salient points, to analyze and classify data; readiness for emergencies and unfamiliar conditions; a progressive spirit; resourcefulness, of self and in subordinates; and, more than all, the faculty (and desire) to use men of ability by gaining their interest and co-operation, and, having ascertained their most efficient field, by trusting them without interference.

As an employer of labor, the engineer takes neither the cold and heartless attitude of the old-school manufacturers, nor the more modern and sometimes (on paper at least) excessive altruism of the theorist. He looks upon these subjects with common sense. To him, his subordinates are human, and interest him. He is frank and courteous among them, but he measures their value, in the ultimate, as he would that of a steam engine, by their efficiency. If they fail to meet that test, his duty impels him to see that they step down and out for more efficient and deserving men who will add to the sum total of human wealth and happiness instead of decreasing it. He rapidly learns, and never forgets, to separate his business wholly from all relations—social or otherwise—that interfere with or hamper him in its conduct.

One of the most striking of recent industrial developments is that of the interchange of information. In this, the engineer has been a leader. For many years his societies and institutes have formed meeting places for men who, while possibly keen competitors in commercial life, have yet found it to their mutual advantage to exchange views, records, and opinions. No other profession has been so quick to overcome personal and selfish motives in this respect. Manufacturing companies are beginning to share the same blessing. For many years,

allied interests, those whose directorate to a large extent may have been identical, have exchanged information regarding common problems. In the United States, the Edison electric illuminating companies have long maintained a society for the specific purpose of effecting such exchanges; the fruits of the work being (nominally at least) not for the benefit of outsiders. More lately, interests which, while not allied, were at least noncompetitive, have found it to their advantage to confer with one another—principally, perhaps, with regard to the purchase of machinery—so that at present it is quite common for a firm to answer dozens of letters weekly from parties who have been referred to them regarding their experience.

Still more recent is the development of a practice of exchange of information between competitive enterprises. A striking example is in the well known American railway associations, in which the motive power men meet yearly with the full sanction and approval of their respective roads, and confer freely with their business rivals regarding economical methods of railroading. In other fields, too, the same practice is being followed with success. Even two adjoining manufacturers—keen competitors for certain lines of trade—will confer, with no intention or desire to agree upon prices, but simply to compare notes regarding troublesome details of the business. There is safety in this, as no man can have an absolutely certain knowledge of his own costs, nor proof positive that his customer may not be deceiving him. An opportunity for competitors to compare may be of mutual benefit in giving to the one information that will prevent him from making an unprofitable quotation, and for the other obviating the necessity of meeting an unprofitable quotation in order to retain the business. In the development of a spirit of co-operation such as has thus become prevalent, the examples of the engineers' societies and of the personality of their membership have played no small part. In the ultimate fruits of this development it is probable that the engineer will be a leading figure.

THE DRAMA OF FURNACE, FORGE AND SHOP.

BY DAY ALLEN WILLEY

[Day Allen Willey, editor and author; born Rochester, N. Y., Aug. 6, 1860; educated at the University of Rochester; has written hundreds of articles chiefly on scientific and technical subjects for American and English periodicals; his home is in Baltimore.]

The names of a hundred Americans have become household words as illustration of one man power, but others there are who also control trusts of wonderful force, unknown save to the few who see them day by day in the garb of the machine shop or foundry, yet actors in a play of thrilling interest. Long before the term "trust" became so familiar to the people combinations of steam, electricity, and even the air itself had been so perfected by human ingenuity that forces of marvelous strength could be exerted to the utmost or held inactive by a single intelligence.

When one realizes the mechanical perfection seen to-day in the great plants of the country a striking parallel is found between such merging of power and the welding of business and financial interests. Economy is the main object of both—economy of man's labor and economy of time—two principal sources of wealth. Stroll through one of the industries where the trainload of dingy brown rock, which they say is iron ore, goes away in a fortnight in ordnance, building girders, or armor plate, and what a series of pictures of mechanical combination and control does it present!

Even the initial process has its display of force. When the casting is to be made a gang of men scoop a pit in the earth floor or the foundry so deep that, completed, a ladder is needed for them to reach the top. This hole is beneath a railroad track, which extends along the side of the building, and is lined with fireclay and brick. Along the track come two iron tanks on trucks, urged on by men who prod them with crowbars. They stop on either side of the pit, and you step back as you wonder how the men, half naked as they are, can stand

the waves of heat that come from them. "All ready; let go," cries the foreman.

Attached to each car is a wheel. A hand from which the perspiration is dripping grips the rim and from the bottom of the tank issues a jet of white, out of which an occasional spark shoots. It seems to be fire, but whiter than ordinary flame. Liquid? Impossible, yet it is a liquid forming a molten lake beneath. The light illumines the features of the men standing rigid, motionless. It reveals every vein and every muscle of their arms and breasts, the deep set lines of their faces. This wonderful transformation fascinates them, too, without being conscious of it, though they see it day after day and some year after year.

Nearer and nearer the liquid approaches the top of the pit. The foreman nods to the men at the wheels. The hands which have never relaxed that grip move slightly and the jet of light becomes narrower and narrower, and at last vanishes. The "ladles" are moved away and the seething mass left to turn into solid matter. But the picturesque display is not ended. Gradually the white surface loses its vividness and assumes a yellowish tint. In turn this changes to a light red, then to a deeper cardinal, steadily growing darker and darker. It seems to be losing its life with the variation of color and at the last indeed assumes the grayish hue with which death is associated.

Such is one scene in this theater where the drama of the triumph of mind over matter is being enacted. As the metal curtain is rolled aside, revealing another part of the stage, the rush of light which comes from the opening blinds you for the moment—only one thing that you can compare with that glowing brilliance from which every second a jet of flame shoots out. Dante has pictured it and Goethe has painted it in words in "Faust." A hundred feet away the heat scorches the skin as the sun on a noonday of July. Yet the half dozen men flitting back and forth, their figures silhouetted against the white, seem to dare the fire tongues to lick them, so closely do they approach the opening.

The man who wears the dark glasses gazes into it for a moment or two, then steps back, places a little tube between

his teeth, and from it comes a shrill whistle. Turn your head and follow the glance. He is looking at what seems to be a huge wheel suspended from a long rod which comes slowly toward him. In front walks a workman to warn his fellows, for below the wheel dangles a chain, a blow from which would knock a man's brains out. You don't need to be told so—one of its links is as long as your arm.

As it stops in front of the furnace two of the men spring forward, catch the loose ends of the chain, and bolt them under a cylinder as large around as a hogshead, resembling the hub of a gigantic wheel, for to it is fastened a sort of axle. Another man picks up a long rod, another a length of hose. Those who wrapped the chain about the cylinder jump back as the links tighten, and up it moves until opposite the fiery opening. The man with the glasses blows his whistle and in it goes. On either side a man with a rod guides its course as it grasps a mass of something the outlines of which you can just make out.

From the opening comes a shower of light—stars, dots, dashes, even tiny balls of fire which fly high in the air, and, descending in a miniature cascade, break into dazzling atoms as they reach the ground. Some even strike the workmen, but they do not wince from the bath of fire. The only danger is to the eye, for they bound off the bodies like rubber balls. It is a huge hand which has gripped the mass and is now pulling it out inch by inch.

As fast as it appears the hoseman pours a stream of water on it, which runs along the white hot surface, boiling and bubbling like grease in a frying pan. Occasionally he turns the stream on some of the panting figures, ready to drop from the blistering heat which strikes them in waves as they scrape the ashes and "scale" off the casting with their "hoes." This is a case where one burns. Perspiration does not relieve and heavy woolens wrap the men to the neck to keep them from scorching.

Now the mass is swinging in the air as it starts off to another part of the works. The steel door is rolled back in place, shutting out the miniature hades from view. As the eye becomes accustomed to the semi-darkness it watches the

fiery traveler moving majestically along, so slowly that you can easily catch up with it. Above it is a long steel beam stretching from side to side of the building, and you now see that the little wheels supporting each end of this movable bridge rest on an elevated railroad track the width of the foundry.

Here is what the man who is going ahead of the casting to warn everybody away from it says: "That thing on the top with a lot of wheels and cylinders you see is what does the lifting. It is the crab, and it is the biggest crab you ever saw —runs by electricity. Why, it can handle this 'ere fifty tons like you or me would toss up a pound weight. Notice that fellow in the little cage? He does it—just has two or three levers, that's all."

The man in the cage! Beside his leather covered bench are the shining handles of the levers. The little house is just large enough for him and them. Open on each side it hangs beneath the crane in such a way that all he has to do is to look at the man with the glasses or any other of the bosses. A wave of the hand or the sound of a whistle and the nearest lever moves a few inches, the wheels of the crab begin whirling, and it "buzzes" as the electric current rushes through it with noise like the trolley of the street car, forcing the weight, whether fifty or a hundred tons or a single ton, up and up. Another wave of the hand, the lever is pushed back, the buzzing ceases, and the weight stops moving.

At another motion the motorman pulls the next lever and the crab begins rolling side ways along the top of the crane with its burden, for the man can work his mechanical muscle in almost as many ways as his human brawn. When at last he reaches the forging press you realize this fact, if you did not before, for he holds the metal under it as easily as a boy holds his jackknife. Here is another play of power, but without the fire scene which so intensified that at the furnace opening. It is less brilliant, less vivid, but the tragic is developed by the somber massiveness of the mechanism.

The men seem dwarfed to pygmies beside the mechanical giants lifting and pressing and shaping at their will. The chunk of steel is still white, but has dulled in hue. The life

of its coloring has gone. Strike it and no sparks fly off in protest. Thus it is held in the grasp of the chain and moved forward until one end lies upon the ledge of iron below the two great columns. Now the man in the cage becomes a spectator. He looks down upon men with the scrapers and the men with the calipers to measure the casting, and a group of others, each at his place beside his lever.

The forgemaster resembles the director of an orchestra as he stands where he can see every leverman and the casting as well. He waves his hand to a man on a platform raised above the others, who pulls his bar. Inch by inch the cylinders descend, pushing the jaws of steel to which they are bolted down and down. He motions to another leverman and this one pulls his bar. You cannot see what happens, but a creaking and grinding sound shows some other force is at work. Thus he continues, never taking his eye from the mass until all of the machinery is at work.

The men themselves instinctively realize the hugeness of it all, and though they may have pulled and pushed the levers a thousand times in the year, the tense features and the rapt gaze indicate their interest. Every eye is fastened on the press as the space between the bars and the casting lessens, then disappears. A hand wave, and one of the levers is reversed—the power lessened a few hundred tons—but the movement decreases only a trifle.

Tighter and tighter the ponderous jaws grasp the steel. Now turned to a red, it literally flattens and lengthens out. A moment, and the master holds up his hand, all the levermen pull back their handles, and the pressure ceases. The one on the elevated platform has two bars. He moves the left handle and upward rise the cylinders. This is the cue for the man in the cage, and again he takes part in the scene to raise the casting and move it farther into the press, so the jaws can squeeze a thicker p until it is finally pulled from the embrace of the monster, flattened to only a fraction of its original thickness and ten times its former length.

Who does not remember the days when school vacation came and with it fishing time—how he took hunks of lead or horse pistol bullets, and with pincers or hammer and stone

flattened and lengthened the lead into oblong sinkers for his fish line. He needed no heat to forge them, but steel must be heated to soften it. Then it can be lengthened and flattened by the press. It is about the same principle as the boy employed, only the press has the power of 14,000 tons.

When the man on the raised platform to the right pushes his lever as far as it will go, a pressure equal to the weight of some of the great office buildings in Chicago or New York is placed upon the casting. Now is it any wonder that it flattens out and lengthens, as the school boy's sinker. Electric power? No—water such as children use to sail chips and from which the maiden gathers lilies—yet when pent up by human ingenuity can exert a force greater than any known save that of explosives.

Yet this is not the climax of the play. That is reached in the hammer chamber when the metal victim placed upon the block succumbs to the blows of the executioner—a strange and startling parallel to the scenes of '98 and of the later commune as conveyed to us on the canvas wrought by the cunning of the French artist. Some day such a masterpiece may represent the manner in which steel beheads steel.

The prisoner in chains is moved to the front of this guillotine of the foundry. There are the upright posts, the resting place, the framework supporting the massive plate which slides up and down in its groove, dripping with oil—all bearing a sinister resemblance to the death weapon of France but enlarged on a colossal scale. As the crane moves the casting into the gap in the framework a man climbs the circular stairway to the platform half way up one of the great posts and seizes his lever. His fellows range themselves below with tools to clean the debris from the cooling mass.

The hammer boss looks up the groove to see that nothing has caught in it and scans the chain wrapping to make certain that all is secure—that nothing will break from the strength about to be exerted. For an hour steam has been crowded and pressed into the cylinders on each side of the hammer by force equal to that of a thousand horses. The boss takes a last look at the thing on the block.

Above his head the man at the lever has bared his arm to the elbow to give his human muscle full play and tipped back his cap to cool his brow a little, if possible, for the heat from that fifty tons strikes him in the face with suffocating intensity. With eye fixed on his superior he awaits the signal. Possibly a nod of the head, possibly a wave of the hand—it is sufficient. Pushing down the lever he frees the pent up force.

Silently as a feather floats downward this 125-ton knife falls twenty feet in its groove, burying its edge in the dull red. Out spurts a stream of fire on either side as a myriad of metal particles white hot from the friction are forced into the air by the blow. Despite the tons of iron and stone in the foundation the concussion shakes the ground like a convulsion of the earth. A pull at the lever and the executioner has loosed his weapon to be raised to the top of the groove, leaving a deep red cut in the object on the block. But the work is not finished—another, perhaps two more blows are necessary before the ton or so on the edge of the bed is completely severed and falls on the pile of sand ready to receive it.

Later you may see it being bent like a sheet of paper between huge rolls of steel having the power of 7,000 tons, or pierced full of holes as a boy bores a piece of wood with his gimlet, but impressive as are these scenes they seem insignificant beside that of the hammer.

Here is a tragedy of power, once witnessed, never to be forgotten, yet a little later at the noon hour, and comedy replaces it—the comedy of the clay pipe and the dinner pail. For the time all this muscle of mechanism has become lifeless, merely inert forms of metal.

On the bed of the hammer stretches the leverman, directly under the knife which would crush him to pulp, as he enjoys his after dinner smoke. Scarce stopping to wash the grime from their hands a group are sprawled out on the soot and earth floor, propped against the pillars of the press, each with pail in lap, finishing its contents to the last morsel and "washing it down" with the cold coffee in the top can. They realize their mastery, and in their attitudes show their contempt for the power they control.

The man in the cage joins the man of the bar, bites off a quid from his plug of tobacco, and they talk of their charges as if these were human. "She's contrary to-day," says the man of the hammer. "I went all over every nut with the wrench before we started up. They're all snug, but she creaks as though she was racked to pieces. The bed shakes so I am nearly knocked off my feet when I let the hammer go. Probably to-morrow she'll be all right. Gets freakish."

"That was the way with mine last week," says the man of the cage. "Couldn't stop the crab at the right time to save myself—kept runnin' after I pulled the stop lever. Had the electrician look it over. He says nothin's the matter. I know there ain't either—just pure cussedness. It's a brute sometimes that way. Now, Tom there has been workin' his crane for a year, and he says it always goes wrong somehow on Mondays—jest as if it had been takin' too much the night before."

Strange, even grotesque, language to come from the lips of men so dignified as you watched them in the scenes in which they participated. But these men show their character in their vocation. Though they may not have the faculty of expression, it only needs a glance at the stern, set faces beside the hammer and press, reflected in the furnace glow or revealed in the light of the white hot metal to realize that they feel their responsibility, they appreciate the danger of their work—but there is no sign of weakness, no hesitation in doing their duty.

In this drama of the day's work, tableaux are not lacking —statuesque groupings that would be the delight of the sculptor. In the first transformation of the liquid to the ingot you note how men remain rigid in their positions—not a muscle moving until the time for action comes. Beside the press and hammer, awaiting the master's signal, could something of the supernatural change them to marble or bronze, the strength, resolution, earnestness typified in their positions alone would give that group a place of honor in the salon.

You curiously regard the molder standing besides the metal. Of your own strength you could not move the thou-

sandth part of its weight. Its ponderous unwieldiness impresses you with a sort of awe as you think that here is the monster gun of some battleship or a part of its protection. You have a respect for it—you realize the strength, the future power it typifies. But does the man beside it feel the same? Far from it. There is no awe or respect in the deep lined features, in the resolute gaze, which the greatest tragedian might envy. He is its creator, its master. He can work it to his will—thanks to this trust of power.

THE ORGANIZATION OF MANUFACTURING INDUSTRIES.

BY ANDREW CARNEGIE.

[Andrew Carnegie, capitalist, manufacturer, philanthropist; born, Dunfermline, Fifeshire, Scotland, November 25, 1837; came to United States in 1848 locating in Pittsburg; his first work was as weaver's assistant in a cotton factory at Allegheny, Pa.; was messenger boy in Pittsburg office of Ohio Telegraph company, 1851; learned telegraphy and entered the employ of the Pennsylvania Railroad company; became telegraph operator, advancing by promotions until he became superintendent of the Pittsburg division of the Pennsylvania system; assisted Mr. Woodruff, inventor of the sleeping car, in organizing the Woodruff Sleeping Car Co.; served as superintendent of military railways and government telegraph lines during the civil war; after war organized Keystone Bridge works and Union Iron works located at Pittsburg; introduced Bessemer process of making steel, 1868; became principal owner of Homestead and Edgar Thompson Steel works, and other large plants as head of the firms of Carnegie, Phipps & Co. and Carnegie Bros. & company; interests consolidated in Carnegie Steel company, 1899, which were merged in the United States Steel corporation in 1901; retired from business, 1901; has given libraries to many towns and cities in the United States and Great Britain, and large sums in other benefactions; Lord Rector university, of St. Andrew, Edinburgh, 1903. Author, An American Four-in-Hand in Britain, Round the World, Triumphant Democracy, The Gospel of Wealth, Empire of Business.]

I invite your attention to the important question of the organization and management of that most complicated of all pieces of machinery—man—which has been my province.

Speaking from experience, we had not gone very far in manufacturing before discovering that perfect management in every department was needed, and that this depended upon the men in charge. Thus began the practice of interesting the young geniuses around us, as they proved their ability to achieve unusual results—the source of big dividends. These received small percentages in the firm, which were credited to them at the actual cash invested, no charge being made for good will. Upon this they were charged interest, and the surplus earned each year beyond this was credited to their account. By the terms of the agreement three quarters of their colleagues had the right to cancel it, paying the party the sum then to his credit. This provision was meant to meet possible extreme cases of incompatibility of temper, or if the recipient should prove incapable of development, or of enduring prosperity. At death the interest reverted to the firm at

its book value. The young men were not permitted to assume any financial obligation, and not until their share was fully paid by the profits, and there was no further liability upon it, was it transferred to them. Thus thoughts of possible loss never prevented concentration upon their daily duties. They were not absorbed in the daily quotations, for the shares were not upon the stock exchage or transferable. This policy resulted in making some forty odd young partners, a number which was increased at the beginning of each year.

We did not fail to see, as the works enlarged, how much success depended upon the mechanical men, the superintendents and foremen, yet not one of these had up to that time been admitted as partner. The business and the mechanical men—office and mill—were still widely separated. Well do I remember the first attempt to bring these two departments into closer relations. It was made with our Captain Jones, well known and appreciated as being in the foremost rank of managers, perhaps the foremost of his day in America. He came to us as a working mechanic at 8 shillings per day. I explained to the captain how several of the younger men in the business department had been made partners and were actually receiving much greater rewards than he, while his services were at least equally valuable, and informed him that we wished to make him a partner. I shall never forget his reply. "Mr. Carnegie, I am much obliged, but I know nothing about business and never wish to be troubled with it—I have plenty to trouble me here in these works. Leave me as I am and just give me a thundering salary." "Hereafter," I said, "the salary of the president of the United States is yours, Captain," and so it remained till the sad day of his death. My seniors, the presidents of the other manufacturing concerns, did not fail to take me to task for ruining the steel business by paying a mechanic more salary than any of them received. Being much the youngest of these great dignitaries, I humbly confessed my wrongdoing, not, however, failing to inquire if they knew where we could find two or three more Captain Joneses at double the price. We did not overpay the captain; he was worth several ordinary salaried presidents. The cap-

tain's declination of partnership was the only one which ever came within my experience. None of the other mechanics ever preferred salary to partnership, and they were wise. Nothing can compare with that form. From that time forward the union of the mechanical and business partners went steadily forward until no manager of a mill was without his interest in the business, as pertaining to the position, and no board of management, or important committee, was without a mechanical representative. Thereafter mill and office conferred upon all important sales or contracts. The mechanic and the man of affairs were in constant consultation and fellow partners—one of the most profitable changes that ever we made.

There was another step taken in the same direction. Men having others under their charge were given an interest in the proceeds, or savings in cost, in their department. Where it was impossible to decide the limits of a department, the managers were rewarded by handsome bonuses beyond their salary, based upon the general profits of the year. Thus, as a rule, every man in authority became more than a mere wage earner. He felt himself on the first step of the ladder which led to partnership sooner or later, and was worth any two mere employees paid only a daily or monthly wage and denied special recognition.

This plan of reward according to results for heads of departments has already become so general and is spreading so fast we may be sure it has proved its efficiency. There are few large department stores or important houses in retail trade which have not been forced to adopt it.

This plan is probably bound to prevail to greater or less degree in manufacturing concerns, and the sooner the better, for the greater number of the workers capital can compensate, and in one sense reward, by sharing its gains, the more harmonious and therefore more profitable for both must the relationship become.

The great secret of success in business of all kinds, and especially in manufacturing, where a small saving in each process means fortune, is a liberal division of profits among the men who help to make them, and the wider distribution

the better. There lie latent unsuspected powers in willing men around us which only need appreciation and development to produce surprising results. Money rewards alone will not, however, insure these, for to the most sensitive and ambitious natures there must be the note of sympathy, appreciation, friendship. Genius is sensitive in all its forms, and it is unusual, not ordinary, ability that tells even in practical affairs. You must capture and keep the heart of the original and supremely able man before his brain can do its best. Indeed this law has no limits. Even the mere laborer becomes more efficient as regard for his employer grows. Hand service or head service, it is heart service that counts.

One of the chief sources of whatever success may have attended the Carnegie Steel company was undoubtedly their policy of making numerous partners from among the ablest of their men, and interesting so many others of ability in results. I strongly recommend this plan, believing that in these days of threatened exhausting competition it will be the concerns which adopt this plan, other things being equal, which will survive and flourish.

In no field is the wise saying more amply verified than in manufacturing: "There be those who gather, yet scatter abroad, and there be those who scatter abroad, yet put into barns."

If the managing owners and officials of great corporations could only be known to their men and, equally important, their men known to their employers, and the hearts of each exposed to the other, as well as their difficulties, we should have in that troublesome field such harmony as delights us in the field of domestic employment. It is mainly the ignorance of contending parties of each other's virtues that breeds quarrels everywhere throughout the world, between individuals, between corporations and their men—and between nations. "We only hate those we do not know" is a sound maxim which we do well ever to bear in mind.

In the progress toward more harmonious conditions between employer and employed we see that the system of payment by fixed wage has been largely supplanted by payment according to value of service rendered by workmen in posi-

tions of authority over others, and by recognition not only in money, but in position, which often counts quite as much as coin, and not seldom much more with the ablest. There remains still receiving the fixed wage the great mass of ordinary workmen; but we see in the history of the relation of employer and employed that these have not failed to rise greatly also. The movement tending to improve the position of the worker has not passed over even the humblest, but has reached and benefited all.

To-day we have reached the stage of perfect equality between the two contracting parties. Each is free to demand terms or to terminate agreements. Labor is worthy of its hire and is now paid this in coin, the law in many lands going so far as to make its claim a first charge upon the employer's property—a great advance. But the irresistible pressure which has forced change after change in the relations of capital and labor still operates unchecked—a sure indication that the final stage has not yet been reached. We have evidence of this in another important advance, the sliding scale, which provides not a fixed wage but in some degree settles by results. Increased demands bring higher prices and profits to the employer, which in turn bring workmen higher returns, so that as the employer's profits rise and fall, so do the workman's rewards. If I were asked what was the best service the Carnegie company were ever able to render the wage earner, next to giving steady employment of wages equal to any, I should answer, by persuading them to adopt the sliding scale, with a minimum insuring living wages, at their works at Braddock fourteen years ago, which has given perfect satisfaction from that day to this and is still in force, and has produced undisturbed harmony between capital and labor. The sliding scale is a great advance over the fixed wage, not only by securing the workman a prompter and more certain share of the profits, but also because it raises his status. He is something akin to a proprietor when he shares varying profits instead of having merely a fixed wage. He has risen in the scale and is more of a man, and the more of a man the better and more valuable the workman.

While the Carnegie Steel company interested their young men as partners and were always anxious to reward exceptional service, and carried the bonus system to an extent, perhaps unknown, in any similar organization, the masses of the ordinary workmen could not be embraced under the limited partnership form, even if it had been thought desirable that their savings should be so invested. The objection to this from the point of view of the workman, which always arose in our minds and which we were never able to surmount, was the sad and instructive history of the largest manufacturing concerns, especially those of iron and steel.

More than once in the history of the Carnegie Steel company leading partners have been so doubtful of their future as to beg their more optimistic senior partner to buy large amounts of their interests at actual cost.

It is an instructive fact that the majority of the principal of these in the United States have, at some period in their career, either been in the hands of receivers, been mortgaged, reorganized, or sold by the sheriff to the great loss of their original owners. Indeed, those who have escaped financial trouble are the exceptions. The great Cambria Iron company were twice in trouble and once sold by the sheriff; Joliet works were also sold; the Bethlehem company have twice been mortgaged; the 6 per cent first mortgage bonds of the immense Chicago works have sold for as low as 70 per cent, and their shares at less than one half of their par value. The Troy Iron and Steel company have lost heavily and undergone several reorganizations. It may be said that these disasters are of the distant past, but history has a way of repeating the past which we do well to remember. The Pennsylvania Steel company have in recent years been in the receiver's hands. Their shares in demand at $300 in 1881, sold in 1893 as low as $20. There was no over capitalization in any of these companies. Only actual cash counted. In 1903 the Consolidated Lake Superior company was embarrassed—after investing of cash capital $34,000,000. Their preferred shares, which recently sold for $80 per share, are quoted on the exchange at $15.50. The common stock, last year at $36 per share, sold for $4. Our oldest and largest shipbuilding company

must be reorganized, for which $7,500,000 are needed. Their shares, which have sold above $85, are now at $38. The vicissitudes of the leading iron and steel concerns of Tennessee and Colorado are still in evidence. Our friends in Canada have similar experiences. Shares of their large Dominion Iron and Steel company, which sold at $60 in 1901, are quoted at $25.

Our experience in America has not been peculiar. In 1901 the iron and steel works of Germany were generally in a depressed condition, and their shares suffered heavily. I read a list of these losses at the time which impressed me deeply. If I remember rightly, many declined one half or more. Several important works were reported in financial trouble. Experience in Great Britain is similar. Not a few concerns, after vibrating between seasons of loss and gain, have from time to time had to be reorganized, entailing heavy losses upon shareholders. Uncertainty of results pertains not only to iron and steel, but to all forms of business operations, and is inherent in them.

You know too well how the path of iron and steel is strewn with financial loss in all countries, and that all forms of business must encounter grave risks. Scarcely a week passes without news of embarrassment or failure in the industrial world. Thus it has ever been, and ever must be, while human nature remains unchanged.

Bearing all this in mind, the thought of asking the workingman to risk his precious savings in the manufacturing or any form of business was always discarded by us as too dangerous for him. He was advised to buy a home instead and save his rent. To facilitate this, money to build a home was lent to any of the employees who had the ground clear of debt. Their savings up to $2,000 each were taken by the company and placed in a special trust fund, entirely separate from the business. Interest at 6 per cent was allowed, to encourage the workman to save part of his earnings for old age. The funds received were lent upon mortgage on real property, generally to such workmen as wished to build homes. It was believed that this was the safest, and therefore the wisest, use of their savings which workmen could make.

The most convincing proof of the steady march of labor to recompense more and more based upon profits, and in forms drawing capital and labor into the peaceful bonds of mutuality, is to be credited to the United States Steel corporation, the largest of all industrial corporations, and for which they deserve unstinted praise, as proving a genuine interest in the workmen and sagacious thought for their own.

It is in this form: 25,000 of the $100 shares of preferred 7 per cent stock were offered to their 168,000 employees at $82.50 per $100 share, in different amounts according to their earnings, which were subscribed for twice over; nearly one sixth of the men subscribed—one half being salaried men. Twenty thousand more shares of stock were afterward provided, making 45,000 in all, worth about $4,500,000. Monthly payments are received. Another distribution of shares is intended.

It will be noted that the investment is at the risk of the men. This seems a feature which we may, however, expect the corporation to change as experience is gained, as the plan is most wisely stated to be subject to future changes. In most of the states of the Union labor's precious earnings, surely the most precious of all capital, are a first charge upon property, and this I believe the only safe policy to follow. "Every workman a shareholder" would end most of the conflicts which sadden us between capital and labor. To effect this every corporation could well afford to offer to distribute part of their shares among the saving workmen, and in case of disaster, give preference to repayment of principal as a first charge. Any desired legislation with proper safeguards could be readily obtained authorizing corporations to make savings of employees up to a certain sum for each a preferred claim, ranking before mortgage or ordinary debts or the claims of shareholders, akin to the mechanics' lien and the homestead exemption laws. This seems due to the workingman, who, necessarily unacquainted with business, takes his shares upon trust and becomes the beneficiary or the victim of his employers. He should be considered as an inexperienced youth in the affair; besides, he is asked to invest not solely for his own, but at least equally for the advantage of his employer.

Thus we see that the world moves on step by step toward better conditions. Just as the mechanical world has changed and improved, so has advanced the world of labor from the slavery of the laborer to the day of his absolute independence, and now to this day when he begins to take his proper place as the capitalist partner of his employer. We may look forward with hope to the day when it shall be the rule that the workman is partner with capital, the man of affairs giving his business experience, the workingman in the mill giving his mechanical skill to the company, both owners in the shares and so far equally interested in the success of their joint efforts, each indispensable, without whose co-operation success were impossible. It is a splendid vista along which we are permitted to gaze.

Perhaps I may be considered much too sanguine in this forecast, which no doubt will take time to realize, but as the result of my experience I am convinced that the huge combination, and even the moderate corporations, have no chance in competition with the partnership which embraces the principal officials and has adopted the system of payment by bonus or reward throughout its works. The latter may be relied upon as a rule to earn handsome dividends in times of depression, during which the former, conducted upon the old plan, will incur actual loss and perhaps land in financial embarrassment. In speaking of corporations we must not forget, however, that there are many who are corporations in name only, their management being the life work of their few owners. These rank with partnerships, having all the advantages of this form. The true corporation is that whose shares are upon the stock exchange and whose real owners change constantly and are often unknown even to the president and directors, while to the workmen they are mere abstractions. It is impossible to infuse through their ranks the sentiment of personal regard and loyalty in all its wonderful power.

The idea of making every workman a capitalist and of sharing large percentages of the profits among those rendering exceptional service will probably encounter the opposition of the extremists on both sides, the violent revolutionist of

capitalistic conditions, and the narrow grasping employer whose creed is to purchase his labor as he does his materials, paying the price agreed upon and there an end. But this opposition will, we believe, amount to little. It will even speak well for the new idea if it be scouted by the extremists and commended by the mass of men who are on neither dangerous edge, but in the middle, where usually lies wisdom.

Meanwhile, here is the germ of a promising plan offered as a solvent for one of the pressing problems of our age, which may prove capable of development. Human society bears a charmed life. It is immortal and was born with the inherent power or instinct, as a law of its being, to solve all problems finally in the best form, and among these none more surely than that vexed question of our day, the relations between these Siamese twins, which must mutually prosper or mutually decay—capital and labor.

CAUSES OF THE SUCCESS OF AMERICAN MANUFACTURERS.

BY JOHN FOSTER FRASER.

[John Foster Fraser, economist, is one of the most popular of British writers on industrial and economic topics. He has made first hand investigations of the industrial situation in the United States and in European countries and the results of such investigations have been embodied in newspaper and magazine articles and in lectures. Their popularity and value have been heightened by his bringing to his investigations not only the sound judgment of the scholar, but the experience of the business man.]

Some time ago I held conversation with a Spanish gentleman who had been making a tour of England. "Yes," he said, in reply to an inviting question of mine, "I have seen many things that have filled me with wonder: the rush of business in London, the magnificence of your buildings, the keenness in trade. I have seen your great steelworks in Sheffield, your busy black country about Birmingham, your shipbuilding yards on the Clyde side, and your great cotton factories in Lancashire. It is all marvellous. But I wouldn't like to be an Englishman. I am glad to be going back to my own sunny Spain. We're a poor people, but we get some brightness out of life. We've got no great commerce to be proud of; but then we've got no country bleached of all beauty, as I've seen in your black country; we've got no crowds of young men and women in consumption from working in mills, as in Yorkshire and Lancashire. You're a great people, a mighty industrial nation. But what a price you are paying for it! I'm going back to my orange trees and sunshine and happiness."

At the time I thought little of my friend's outburst. Recently I have been recalling it every day. For I have returned from a mission of inquiry into industrial conditions prevailing in the United States. I have been coming in contact with many British manufacturers, and the reply they have invariably given, when I have pictured to them the dash, the sweeping success of industrial America, has been, "Oh, yes, the Americans are a great people. But we in

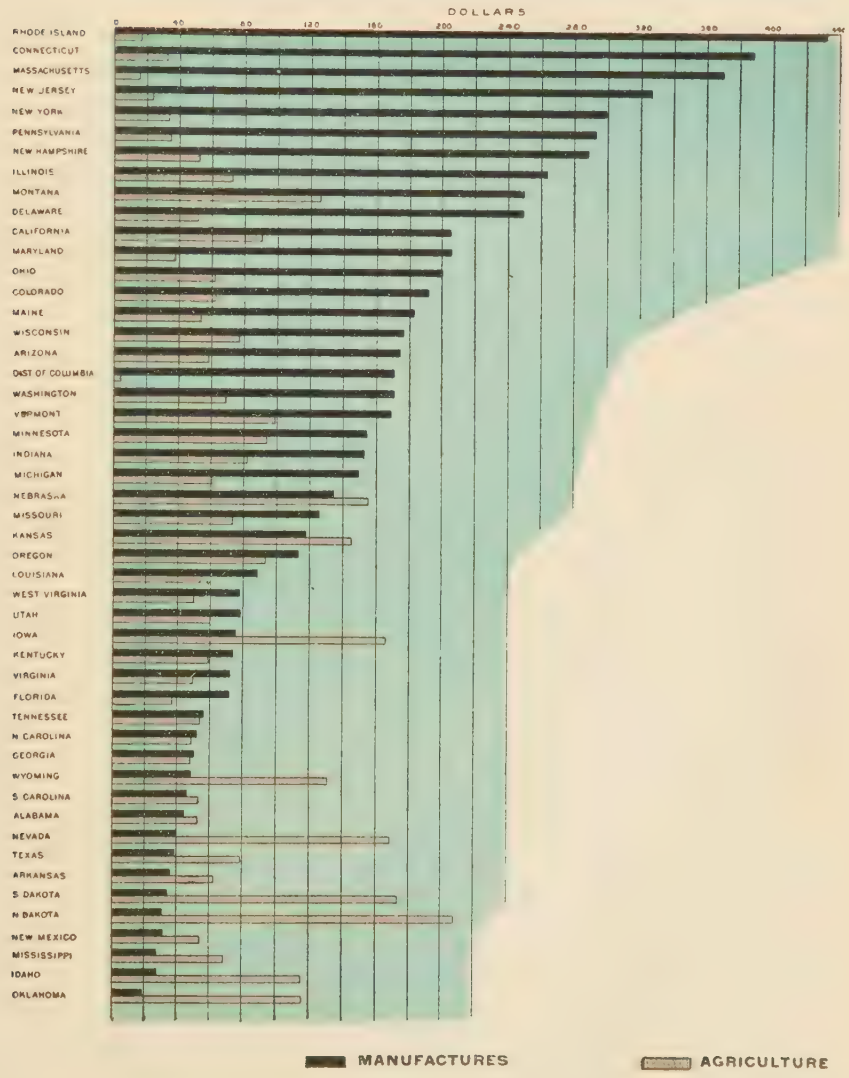
England don't live to work: we work to live. What is the good of being alive if you have to slave from morning till night as those Yanks do? Look at the price they are paying! They are old men before they are forty. They are all anxious and careworn. They can talk about nothing but money making. We've no city of suicides, as Allegheny is, outside Pittsburg—where the life is sapped out of the workpeople—and, thank God, we have no hustling commercialism as in Chicago. We can do without the rush the Americans think so necessary. We haven't got so many millionaires, but we've got healthy men. Old England is good enough for us."

As I have heard something like this from manufacturers in all parts of Great Britain, my recollection has skipped back to what the Spaniard said. The thought has crept into my mind that the Spaniard was a little envious of England's commercial greatness, and yet made himself quite happy by giving a modern turn to the old story of the fox and the grapes. And, honestly, I have not yet convinced myself that the average British manufacturer—in his inclination to suggest that he could do as well as the American if he were disposed, but that he does not simply because he doesn't think it worth while—is not taking up a point of view regarding America the same as the Spaniard took regarding England. It is a happy but dangerous point of view, because it is so plausible, because is produces a placid contentment and a serene, superior smile that the Englishman is not such a fool as the American. At the best, however, it is a little bit of ingenious self-deception.

What we British people have first to get rid of in considering industrial America is the Spanish attitude. We have only to look round our own country to admit in our minds, if we hesitate to express it with our lips, that the reason British manufacturers do not commercially go the pace is not because they do not want to, but because they cannot.

As the result of my investigation in the United States two things came out most prominently: first, that the British artisan is superior to the American workman; and, secondly, that the American manufacturer, the employer, the director of labor, is infinitely superior to his British prototype. The chief reason America is bounding ahead as an industrial nation

PRODUCTS OF MANUFACTURES AND AGRICULTURE PER CAPITA OF THE POPULATION



is not excellence of workmanship, but ability in administration, in control, in being adaptable to the necessities of the day.

We in England must go back thirty or sixty years to find the origin of most of the huge manufacturing concerns in Great Britain. They began in small, insignificant ways, and they climbed to eminence in far less than a generation. Their founders were, in the main, superior artisans; long-sighted, industrious men, having little concern for anything outside their own trade; concentrating all their physical and mental energies; tumbling back, year after year, all their earnings into the business, and so rearing firms famed the world over not only for capacity but for the excellence of work. Those men sprang from a robust, unpampered, common people. Their grammar might have been shaky, but they knew everything about every department of their works. They had rather a contempt for the tinsel life of society. They gave body and soul to business.

Such men, builders-up of Great Britain's industrial greatness, belong to a past generation. Their works are now under the control of their sons or their grandsons, excellent men, but lacking the grit of the man whose portrait, in oils, hangs in the main office. It is not in any reason to be expected they should have that grit. They have lacked the essential that spurred the founder of the business to success—necessity. They were born into success. They have spent several years following academic courses at a university; they have developed cultured tastes; their range of interests has been widened; the calls of public life have induced them to give a portion of their time to educational, philanthropic, municipal, or political affairs; the demands of society have not infrequently led them to sporting with time in a way which must make "the old gentleman" whose portrait is in the office positively spin in his grave with wrath. They are charming men, the heads of Great Britain's industrial concerns; they play golf and they entertain well. But they would never have been as wealthy as they are if it hadn't been for their fathers or grandfathers. They are touched with the inertia consequent on riches. The reputation of their firms has been so high for a

quarter of a century that they think it as solid as the British constitution. They have had no incentive to slog and slave like the Americans. They belong to the second or the third generation.

All this is, of course, a generalization, and, like most generalizations, cannot be made to apply to particular cases. But it is, I believe, a generalization which accurately represents the position of the mass of British manufacturers.

The American manufacturers of the present day are of the first generation. They are the kind of men, with differences, such as we had in England half a century ago creating mighty industrial concerns. Take up a catalogue of big American firms, and you will be surprised at the tiny percentage that did not start from practical nothings, and whose heads did not launch first into business with the proverbial shilling. Once I was talking to a millionaire, and in reply to an airy question of mine what was the first ingredient to make a man as wealthy as himself he replied, "Poverty!"

Here, then, is one of the foundations of the colossal success attained by so many American firms: that their directors came from rough stock, many of them immigrants or the children of immigrants—men who had the initial courage to break with the old ties in Europe, to forsake their homeland, their friends, and go into a strange world with a healthy determination as their only asset; men, indeed, who have had to shift for themselves, who have not sunk because they have been obliged to put forth all their energies to swim, who have had the whole world to combat, and who, by the necessities of the struggle, have been obliged to put every ounce of brain into their work.

The American has had the best of incentives—"Had to" —and his brain has been strained, often to snapping, to gain all points that mean advantage. These men are often loud-mannered and bragging-tongued; they display a lack of refinement which makes a cold shiver run down one's back in talking to them. But probably the fathers and grandfathers of our present day British manufacturers had like failings. The point, however, to be considered in this matter of comparison is that the Americans have been through the mill:

their whole life is absorbed in their business; their conversation hardly ever gets beyond the radius of how more dollars can be made. You can never forget that here are men who give every moment of their life to their work. I do not put it forward as a noble life, but it is the life that makes successful business men.

The American is a polyglot composition. We British folk chaff him on his habit of "blowing," of always making out his firm as twice as successful as it really is, and of declaring his machine will do three times as much as it can actually do. Still, we have a fondness for the American. But the fondness is not returned. Ambassadors, I know, say agreeable things in after-dinner speeches at fourth of July celebrations. Go, however, among the common people and there you will find a resentment toward the nations of Europe. There is nothing of this to be seen in the pleasant social circles to which the average visiting Briton is introduced. It exists strongly, undeniably, among the masses, and these are the people, more than in any other country, who count in America. The reason is not far to seek. The majority of Americans are not more than a single generation removed from being Europeans themselves. They left the old countries with no love in their hearts. For a long time they have been the butt of ridicule to polite society in Europe. They have felt as the new rich always feel—that in manners they are not standing on safe ground; they have resented the contemptuous smile of the other countries, and they have convinced themselves that European countries "are back numbers anyhow, and don't cut no ice!"

It has not been the paupers of Europe who have gone to make the American people, but rather men determined, and maybe a little rancorous under a sense of curbed ambition, who have thrown off old ties. The immigrant races are mixed by marriage. So a new race—not a branch of the Anglo-Saxon at all—has sprung into existence with that alertness of brain you invariably find in the offspring of mixed peoples. They start fresh, with no local customs, with no traditions, with nothing but the feeling they are a new nation, somewhat sneered at by the other nations of which they have to get

abreast. Not quite confident where they are exactly, the Americans make a bold shot and declare they are first. This, indeed, is the perpetual song of the newspapers. In England we constantly tell one another Great Britain is going to the devil. Americans always tell one another America is the leading nation on the face of the earth. An English manufacturer receives a big order and is not at all desirious other firms in the same line should know it. When an American manufacturer receives an order it is blared to the world, and he is interviewed. The English manufacturer has ideas about "reserve" and "dignity." The American sticks all his goods in his shop window for the world to gape at. He is cocksure; he is buoyant; he is absolutely certain of success. So, breezily, with slapdash rush, "joshing"—not being accurate in his facts—he pushes ahead in a way that startles the Englishman.

Therefore, in considering America at work there are these important factors not to be lost sight of: that the American is always enthusiastic; that he is the son of a virile race, with a quickness, an adroitness of intellect that is the result of mixed breeding; and that the heads of firms are mostly men who sprang from the people, are the makers of their own lives, and know their business through and through.

It is within the reach of every American to be a landed proprietor for himself; at least, to own sufficient ground to provide for himself and his family. It is this bottom fact which accounts for high wages in the United States. Where every man can work for himself, extra pay, compared with what he could get in other countries, must be offered to induce him to work for another man. Therefore wages are much higher than in Great Britain. Wages, however, are only comparable when you take into account their purchasing power. To the rude immigrant, the Irishman, the Swede, the German, the Hungarian, the Italian, the French Canadian, American wages are phenomenal. To the British workingman, however, the wage is only large as a figure. Wages both in England and America are on the upward trend. But while wages in America have, within the last ten years, increased two per cent, the cost of living in the Eastern states has increased 10 per cent, and westward, in a place like Chicago,

it has gone up 40 per cent. So the real wages of the American worker are considerably lower than they were ten years ago. I know that in many industries the increase of wages has been 10 per cent; but in striking an average it has to be borne in mind that in all work not actually physical—that is, in all work that is clerical, administrative, supervisory—the wage has decreased. And here we get just a glimpse of a state of things coming about in America that we are very familiar with in Britain—a fondness of the new generation for the towns rather than for the country, a distaste for labor that means grimy hands and mucky clothes, and a flocking to work which gives a clean collar and passable cuffs, but a wage inferior to that of a mechanic.

Wages vary in different parts of the continent, and the extraordinary fact is that where the wages are largest in cash they are the smallest in value, because the purchasing power is less. For instance, wages are lower in Massachusetts than in Illinois. But the working man, if he keeps a bank book, would have a better balance to show at the end of a year were he in Boston than if he lived exactly the same way in Chicago. Speaking in the aggregate, however, I may say that whilst the working man in America earns quite half as much again as the Briton, he has to pay three times as much for rent, twice as much for clothes, whilst the food, roughly speaking, comes to about the same. Having gone carefully into this question I find that the working man in the east is better off than his British friend, whilst the working man in the west is less well off, despite the fact that he receives excellent wages in cash.

The great fact to be reckoned with is that the American manufacturer has to pay big wages in producing an article which is going to compete with a similar article produced in countries where wages are comparatively low. In the home market he has largely resisted foreign competition by means of excessive tariffs. His woolen goods are rather beneath contempt, not because he cannot produce a much better article—he did that when the tariff was lower and English cloth was a thing to be considered—but because he has no competition from the outside. A curious point is that, in

those industries which are most fully protected by tariff, Americans do not at all show that adaptiveness remarkable in all other industries where there is fierce competition—the iron trade and shoe industry are random instances—chiefly because there are no circumstances of competition to which they are called upon to adapt themselves.

The line of progress in adaptability has been in those trades that have had to grapple with European competition. On one side of the Atlantic there have been low wages, on the other side high wages. But manufacturers who have paid and are paying high wages are frequently wresting trade from those who pay low by producing a similar article at a lesser price. Labor saving machinery has given them the power.

Cause and effect are at work in all things, and labor saving machinery has been brought into existence in America, not because the American happens to have the inventive faculty more largely developed than has the European—indeed, all who have considered this matter scientifically know that the American mind is not creative; it is adaptive, appreciative of the value of invention—but because that stumbling block of high wages, which stood in the way of competition with cheaply produced European goods met in the open market, had to be overcome.

If you are in New York, take a walk along Broadway—or, indeed, any of the main streets—and glance at the names of the shopkeepers. It is rather the exception to see a name with a British flavor. Go, however, to the patent office at Washington, and run your eye along the lists of inventors, and you are amazed at the vast majority of names being British. Not by any means are they all of Americans who come from a British stock; but a great many of them are of men with a British domicile who have patented their inventions in the United States because the American patent office is infinitely superior to our own, and because the American manufacturer is keen after anything and everything that is novel and an improvement. In England, when a man thinks he has invented something, and has patented it, and has possibly leased it to a manufacturing firm, there is the likeli-

hood of an action at law for infringement put forward by some other inventor or firm. Having it decided in the law courts, whether a thing is a patent or not, is expensive. I can well understand British manufacturers hesitating to make a mighty plunge with a new idea, because of the dread of having to defend an action for infringement. There is, however, no such trouble in America. The administration of the law in the United States is almost as dilatory as in Turkey—and there are other points of resemblance—but as regards the law on patents it is effective and decisive. A man sends his invention to the patent office at Washington. It will take anything from six months to two years to get it through. It is the staff of the patent office which finds out whether there is an infringement or not. If it decides it is a new idea—that, indeed, it is a patent—a document to that effect is issued, and then no small firm which takes up the idea need be in any dread of having to fight a big firm in the law courts.

Neither the British employer nor the British workman is so alive as the American to the practicability of an invention. The British manufacturer is sometimes suspicious of a new invention brought to him. In considering it he focuses his criticism on possible drawbacks; he says he will think about it; that perhaps he will give it a trial; that he will see how some other firm prospers before he spends any money on it! When there is a mishap he rather prides himself on his sapience, and reminds you of his original opinion with "I told you so." The American manufacturer is hardly ever an adverse critic to a new idea simply because it is a new idea. He doesn't want to see how other firms get on with it before he ventures; if there is anything in it, he wants to get right away ahead before anybody else has a chance. He sees quickly enough where faults are. He doesn't, however, throw a thing on one side because of the faults. He sets about trying to put them right. It is the idea he is after, and, as a practical man, he will work out the ideas. Let me give a remarkable instance. Nikola Tesla is regarded by many electricians as a visionary, a flamboyant expounder of the impracticable. They do not see beyond his theatrical posing.

But Mr. George Westinghouse, head of the Westinghouse Electrical works at east Pittsburg, has seen beyond. Through much vapor he has discerned germs of genius. As placed before him by Nikola Tesla many ideas were unworkable. But there were the ideas, the suggestion of possibilities, and Mr. Westinghouse himself is a practical man and he has practical engineers in his service. Much has been discarded; yet some of the most valuable inventions belonging to the Westinghouse company were, I am informed, the outcome originally of Nikola Tesla's brain.

Many inventions in active use in America to-day are the creations of Englishmen which no manufacturer in England thought well to take up. In the first state they were probably not worth taking up. But it was the American who grasped the thing, who altered, adapted, and improved the invention, and made it valuable. It is to be noted how many are the inventions respecting railway engineering, brought out by Englishmen, not used in Great Britain, but in general adoption in America.

The most striking recent instance of an English invention not being appreciated in England, but being adapted in America, is the Northrop loom. Here is an ingenious loom invented by a Yorkshireman, which automatically, when a warp breaks, stops the machine instantly, and does not go on weaving defective cloth. It requires an English girl of experience to look after three or four ordinary looms, being ready to run to a machine the moment her quick eye discerns a break, to stop it and repair the warp; and she is not always successful in avoiding a stretch with a missing thread because, while she is repairing one machine, another may go wrong. With the Northrop loom, however, a little girl, fresh from school, with not more than a fortnight's experience, can look after twenty looms.

When I went through the cotton mills at Fall River last autumn I saw thousands of the Northrop looms at work. Until quite recently there was not, I believe, a single Northrop loom in all Lancashire—the center of the cotton industry of the world—and even now, I understand, only one firm has adopted them to any extent. The criticism of Lancashire

manufacturers against the loom was that the English warp was so fine it would not bear the strain of the automatic mechanism, and the reason its use has been possible in the States is that the warp is rough and stronger. But it should not be forgotten that when the loom was first taken to America it was by no means perfect, even for rough and strong warp. There was no doubt, however, about the invention being of use the moment it was adapted. English manufacturers hung back from any attempt at adaptation, and only now, when improvements have been effected by the Americans, are our own manufacturers waking to the possibility—probability, maybe, very likely—that the Northrop loom can be made serviceable in the Lancashire mills.

Now, whatever trade union leaders say to the contrary, there is in the mind of the British workman an objection to labor saving machinery. The motive of resistance, from his limited point of view, is not altogether unworthy. He has a wife and children to keep, and increased machinery may throw him out of work. Certainly it will reduce the number of workmen, and if he himself does not suffer, then his fellows are likely to be dismissed. It is the same feeling which causes him to "ca' canny," to work much slower than he can work. If he does twice as much work as he has been doing, that implies, to his mind, he is keeping some other chap out of a job. "Live and let live" is his easy philosophy. Trade unions have laws which absolutely restrict the output, most pernicious in effect on trade and bad for the good worker, because they make him set his pace to that of the slow man, and keep his earnings down though they help up the wages of the incompetent. Already in America there are signs of the trade unions urging restriction of output. But there is no animosity to labor saving machinery.

The British workman is the most intelligent of his class in the world. Give him time, and he will turn out a better article than anybody else. Send him to America, and, when he has got rid of his sluggishness, the American worker becomes but a boastful second rater alongside him. But the American is alert, and does not feel that new machinery is going to displace him. It is exceptional indeed for a British

employer to get an improvement on machinery suggested by a workman. In the first place, the British workman has not that zest for his work which the American has; in the second place, it is none of his business to invent; in the third, even if he thought of an improvement, he has a shyness about approaching the employer; fourthly, the chances are he might be snubbed for his trouble.

Nothing like this exists in America. There is a much closer relationship between employer and workman. The one calls the other "boss," but it is only a term, and is no admission the employer is his master. He gives good work for good dollars. On how a thing should be done he will "cheek" back his employer. There is no "Yes, sir," and doing the thing the wrong way simply because the employer proposed that way. The workman knows if he strikes an improvement it is going to be a good thing for him personally. If he thinks of some alteration whereby he can turn out twice as much, he knows the employer won't expect him to turn out twice as much for the same pay. They are partners, and the workman will get at least half the advantage. So there is an incentive to all the mechanics of America to adapt. They make it their business to improve, and it is by this wholesale adoption of labor saving machinery that the difficulty of high wages has been largely overcome.

But there is another result. With almost everything being done by machinery there is no need for skilled artisanship. The brains are in the machine, and all the manufacturer requires is somebody to look after the machine. That is often a simple matter. So what a British workman learns to do after seven years' apprenticeship is, in America, done by a machine looked after by a lad who has had only a fortnight's tuition.

That is why as the Englishman walks through American workshops he is startled to see so few middle aged men. What is done by a man of forty in England is done by a lad of twenty in America, and where we would employ lads the Americans employ girls. Go into the Westinghouse works at east Pittsburg, and you will see a thousand girls engaged in making delicate electrical appliances. Go into any of the big shoe

manufactories at Brockton or Lynn, near Boston, and again you will see thousands of girls. The increase in the employment of women and children is altogether out of proportion to the increase in the employment of men in the states.

Here, then, you have the American manufacturer equipping himself for commercial competition by getting the brains into the machines and getting cheap labor to work them—cheap labor, that is, in comparison with what he would have to pay were his workmen skilled artisans, as they are in a British workshop. But he goes further. He specializes. He does not try to make twenty things in engineering. He makes one thing, be it bridges or locomotives, or reapers, or machine tools. He focuses on one thing, makes his splash in advertising that one thing, gets a reputation for that one thing. But in it there may be a hundred parts. He specializes his work people in making those separate parts. They have one little thing to do, and they do that, and nothing else, year in and year out. It may be the punching of a hole. I have seen an American workman do a monotonous thing a thousand times a day—a thing which you cannot get out of your mind as positively deadening to the intellect, and which you would think would drive a man of intelligence to madness in a fortnight. It is all done with a speed that is amazing, and which I fancy no English workman would continue for a week. But the American finds fascination in his adroitness, in the very clatter of multitudinous repetition. He is unequalled as a worker; but put him alongside an English artisan and you find that in excellence he is far surpassed. Yet over all that specialization is the marvellous administration of the employer, so that parts meet parts and, like the action of a beautiful piece of clockwork, the article is brought to completion.

Here arises a very legitimate criticism, often heard in Great Britain, that in wear and tear the American article does not last as long as the British. That is correct. But the American tells you, with a smile, that he doesn't make things to last an eternity. He makes them to last only sufficiently long. Take the manufacture of boots, about which we have lately heard a great deal . The American manufac-

turer has invaded the British market, and while the sale of British boots has decreased in our colonies, that of American boots has increased. This is not because the American boot wears better than the British. It does not. A finely made British boot is the best in the world. But in the average boot, the boot which the average person wears, which he buys ready made in a shop at from 12s. 6d. to 25s. a pair, the American article is more popular. It looks neater; there are so many different widths and half sizes that it fits at the start; you have not to be satisfied with it being "all right in a few days, sir." The British boot manufacturers tried to laugh American competition out of existence. Then they took to American methods, and to-day all the largest British boot manufactories are fitted with American machinery. Indeed, all the most ingenious devices in the manufacture of a shoe came from the other side of the Atlantic. It is not enough to tell the public the British shoe wears longer than the American. We don't buy our boots and shoes to wear to the last eighth of an inch. We buy them to fit us and serve us for a time, wanting them to look neat and not be heavy and clumsy. There the American showed the way.

Take railway locomotives. Several of our big lines have tried American built engines. Generally speaking, they have been pronounced a failure; they consume more coal than English engines, and they spend too much of their time in the repairing sheds. But there are several things to be borne in mind. The American builds a locomotive to last ten years. The British maker takes pride in pointing out engines in this country that have run forty years. The American engine is built to drag immense loads. It has an enormous haulage power; it consequently consumes much coal. In England or the States it uses the same amount of fuel. But whilst in the States it has a giant's work to do in haulage, in England it has only an infant's work by comparison. "Put the same weight behind our engine in England," says the American maker, "as we do in America, and then you will find while it consumes more coal it earns more money by the increased haulage capacity."

It is by the adoption of enormous cars and having locomotives of great haulage power that the cost of conveying freight in America, which formerly was the same as in England, is now less than one third per average ton. One sees American locomotives all over the world. So one does British, but not in the same proportion. British makers have recently been getting big orders from abroad. This is not because the American engine is being discarded. It is because America is so prosperous—there is such a boom in the home trade that American makers have no opening to fulfill new contracts for two or three years yet. The point, however, is that the American railroad companies have for a number of years been solving the question of freight charges by the adoption of engines of huge haulage power and cars of thirty ton capacity. Only recently have the British railways made a move in the same direction.

The American manufacturer has vim and something of the gambler in him. He is thirsty for new ideas; he is daring. Where the Englishman would hesitate and think and calculate, the American will plunge, neck or nothing, at a venture. He can see ahead further than the Englishman. In British works new machinery is fitted up when the old has begun to wear out or when nearly everybody else has it and it is necessary to have it also if trade is to be held. Those are not considerations which weigh with the American manufacturer. His constant criticism against his cousin on this side of the Atlantic is that the Britisher doesn't know the value of a scrap heap. An American will spend, say, $150,000 in putting in the latest machinery. Six months later some fresh appliance which will do more work and quicker is invented. He does not wait till the machinery he has put in is worn out before adopting the new invention. The machinery fitted six months back may hardly have got into proper working order. But he rips the lot out, "scrapheaps" it, and has the very latest machinery. He sees ahead. He sees how he has practically thrown away $150,000; but he also sees the gaining of $500,000.

We, in this country, set much store by experience. The American sets more store by youthful enterprise. We think

a man who has been in a business for thirty years is the one who ought to know most about it. The American thinks that a man who has been at it so long is certain to have fossilized ideas, and therefore not likely to keep abreast of the needs of the times. We think a youth thrown into responsibility will, likely as not, make a mess of things. The American thinks that responsibility brings ballast and with all the fire of his young manhood a youth will strive night and day to prove the confidence placed in him is well placed. And here the American is right. Time and time again, as I have gone through the workshops of the United States, I have almost been staggered at the mere boys who are managers and heads of departments; not the sons of proprietors, but young fellows who have started at the bottom, proved their grit, shown their energy, and been pushed on to high positions. It is not at all unusual to find a man of twenty four years having the control of several thousand men. And the fact that a man is young and unmarried is no reason, in the employer's mind, why he should receive comparatively small salary. The question of how cheap you can get such men is not considered. No price is too big to give a lad who has brains and adaptiveness. It is recognized that by paying him well, appreciating him, you fire his enthusiasm.

The tendency within the next decade will be to pay lower wages in America for mere physical labor. The trend is to pay more, never mind what, for brains. Every young American knows this. That is why there is a positive rage for technical instruction and why the technical schools are ever crowded. We have nothing like the same eagerness in Great Britain. After being in America, seeing young mechanics almost starve themselves to pay for a university course—filling in their vacations by acting as waiters in hotels, or tram conductors or bath chair men—it brings a chill to the heart of a Briton to come home and see hardly any such desire among the British youth, and to see our excellent technical schools appreciated only in a lukewarm way.

I readily recognize there is a stress and a strain in American industrial life which suggest the inquiry, whether, after all, the prize is worth the struggle? I have often shuddered

at the thought of what is likely to be the effect on the race of making millions of workers little other than machines. Now and then I have been unable to restrain an open smile at the tremendous conceit of the American manufacturer and his colossal ignorance about things European. But it is not by pooh-poohing his braggadocio, nor by moralizing about the grinding conditions of labor, nor by complacently saying British ways are good enough for us, that British manufacturers will stem the tide of American industrial success, which is already more than threatening fields of commerce we had considered exclusively our own. It is not sufficient to point to the fact that British trade is increasing, and so dismiss foreign competition as the nightmare of pessimists. Increase of trade can only be considered comparatively. And while we crawl, America bounds.

THE RELATION OF EDUCATION TO INDUSTRIAL AND COMMERCIAL DEVELOPMENT.

BY HOWARD J. ROGERS.

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The rivalry of nations has become so intense that the preliminary training of their citizens is a matter of unusual moment.

In older times this rivalry generally culminated in the arbitrament of war, and as God was usually on the side of the heavier battalions, and as the material of the battalions was not of over vital import, provided it was good food for powder, the necessity for the mental development of any class but the ruling class was never keenly felt. But the rivalry of the present day is not so much one of territorial aggrandizement as of the development of trade and commerce, and war is consequently a more remote resort. Were this spirit still one of national aggression and territorial acquirement we should now be turning out the common soldier and the officer; but when the dominant activity of the world is turned to the thousandfold phases of commerce and of industry, each requiring special training, and each dependent on the flexibility of mind and adaptability to conditions of its followers, the drill and training of our rank and file becomes a vital proposition.

Granting, then, the industrial predominance of the present age, the timeliness of the subject of this paper becomes self-evident. In discussing it we need to consider two main propositions: (1) The tendency of our national development; (2) the kind of education of value to it.

The initial years of the new century, are the annus mirabils of material progress. They have broken the record of record

breaking years and set the pace for the present century in a manner to astound our calculations and confuse our standards. The units of value to which we have become accustomed are inadequate, and it confuses our mental perspective to see the billion-dollar combinations substituted for the million, and continents take the place of countries as fields of activity.

Just a brief résumé of some of the most striking facts in the record of the United States will indicate not only the tendency of our development but fix more strongly in our minds its propulsive power.

Bradstreet's, in the annual review given out in January, states that the bank clearings for one year were 118 billion dollars, a gain of 38 per cent over the year previous.

The gross railroad earnings for the year showed an increase of 12 per cent, and the net returns 16 per cent over the best preceding year. Pig iron production was nearly one seventh larger than the heaviest ever before recorded. Iron ore shipments were never before equaled, and anthracite coal production was 10 per cent larger than the year before, and 5 per cent greater than the record. The bituminous output was equally heavy. Shoe and leather production and the manufacture of woolen clothing show almost as large gains and a steady advance. It is a matter of current information that the freight transportation facilities of the country have been utterly swamped by the demands upon them, and that the capacity of our shipping interests has been strained to the breaking point.

From other sources we learn that the mining industries of the country contributed $1,650,000,000 to the wealth of the country and of this amount 83 millions was of mined gold,—an increase of 5 million dollars over any previous year. The export movement in wheat during the first four months of the crop year was unparalleled, and has reached the enormous rate of 270 million bushels per year.

Not less wonderful have been the triumphs won in the electrical field and the possibilities which they promise for the development of industry. The storage battery perfected by Edison, weighing but 46 pounds for each horsepower; the

Delaney application of telegraphy, whereby a letter can be transmitted from New York to Chicago with small expense and with little loss of time, and the systems of wireless telegraphy with all that they mean to ocean traffic, are the main examples in point. Already the Marconi patents have passed into the control of the Lloyds, the chief marine insurers, and vitally interested in reducing the risks of maritime insurance, as well as in developing the safety of ocean transit.

Such are some of the facts which indicate the tendency of our national development, the nature of the great interests involved, and the spirit and courage of our great republic. What have been the underlying principles and agencies whose development has caused this wonderful fruition,—for nations do not develop in a day,—and to what must we look for the preservation of this same spirit and intelligence in the future?

Nothing has more tended to open our own eyes to our strength and greatness than the concern and consternation of foreign nations which have begun to realize it since the Spanish war. The "American peril" is a real one to them, since successful competition with it means a readjustment of their social and political as well as commercial relations. We can well understand the cry of the European editor who, after a résumé of our power, growth, and energy, threw up his hands in the admiration of despair and said: "A continent has come of age." And I do not believe there is one of us, whether he is expansionist or anti-expansionist, no matter where he comes from or what he may be, that does not take pride in that forced tribute, or look forward to the time when to say in any capital of the world, "I am an American," will demand the same respect as the shibboleth of ancient Rome—civis romanus sum.

The world is entering upon a new age. We can scarcely call it a scientific age, as that name has been appropriated, and justly, too, by the latter half of the nineteenth century, but it will be an age in which the development of the sciences will predominate. Hitherto we have restricted the word "age" to a phase of development in a single country: The golden age of Rome, the Elizabethan age of England, the Renaissance of western Europe; but this is no longer possible. The world

has ceased to be a vast area. The demands of society and the response of ingenuity have overcome the obstacles of both time and space. The world has been transformed into a community, with common ties, common problems, and common obligations. Henceforth, the world may go forward, it may go backward, but it will go together. What part each member of the great family of nations plays in this stupendous drama depends upon its genius, its enterprise, and its traditions.

The twentieth century will be the scene of a struggle for commercial and industrial supremacy. As indicated in the examples already given, the successes of the United States in the preliminary contests have been so marked that other nations have paused in sheer astonishment to review the situation, inspect their equipment, and make a comparison of methods. This comparison, to be of any value, must go far beyond the apparent machinery which controls our industrial methods. It must take into consideration the spirit which animates our institutions; it must reach the antecedents and traditions handed down to us by our liberty loving fathers, but more than all, it must reach and fully realize the educational methods which equip our youth for their work in the world.

A nation cannot rise to a higher level than its citizens. It is not the height of intelligence, but the height of the average intelligence, which determines the capacity of a state. It is true that we are a young nation, a vast territory—rich in natural resources, with undiscovered possibilities greater than any past development; but the record we have made would have been impossible had it not been for the initiative and self resource of the American type of citizen. It is this type which has attracted the attention of late of the nations of Europe. It has caused admiration, not a little envy, and some consternation. The type is not new to us. We found it in the civil war, we found it in the Spanish war, we found it in every emergency which has ever confronted our republic. Were I fond of metaphors, or writing, maybe, for the newspapers, I might term it, as he often has been termed, "the man behind the gun," but I prefer to designate him as the product of our public school. He is the direct opposite of the machine drilled man; for, though they may have in common

the same grim courage and the same implicit obedience to orders, the former has the initiative and the genius which act where orders fail to reach, and where conditions unforeseen arise. It makes no matter to what quarter of the globe he is sent, or with what mission he is intrusted—he can adapt the training which his country has given him to any variation of conditions, and make success where others fail.

The question then resolves itself into this: What is the difference in the training given by the states that it would produce a different average of efficiency in the states? And here, too, come in so many elements for consideration that we must reach out a little and get a grip upon the subject.

We speak trippingly at times of comparing educational systems. But do we always realize what we mean? The comparison of educational methods of countries goes deeper than curriculums, methods, or administrative machinery. It comprises the history of a people, their temperament, their traditions, and the spirit of their institutions. It is the outcome of all these. Education is the embodiment of the genius, the aspirations, and the compromises of a people. No adequate idea of Greek art and Greek literature could be obtained unless we knew the characteristics of the Greek nation, its intense love of freedom, and its passion for physical beauty and development. We must look to historical beginnings. America has been particularly fortunate in this respect. We had no legacy of ignorance and stolidity bequeathed to us from the middle ages. There are some advantages in being a young nation. You can cut your cloth regardless of the pattern of your ancestors. We have never been burdened with blind allegiance to precedent, or servility to a creed. Whatever nation of Europe you may choose for an example; whether we take France or Prussia, which for nearly a century have been engaged upon the problem of the education of the masses; or England, which has been engaged upon it a lesser time; or Russia, which is just beginning—they have had first to penetrate down through the ignorance, superstition, and even the antipathy to culture generated by centuries of mental apathy. They have had first to awaken a responsive spirit—a problem we have escaped

We may have, therefore, in a locality a fine series of schools, well equipped, well manned, a matter of pride to the people; we may multiply this community by as many towns and cities as there are in the country, but this does not make a national system; nor will a study, on the part of a foreigner, of this well regulated and well oiled machinery enable him to obtain a comprehensive grasp of our educational life. Education is a broad term, and means not only the mechanism of instruction, but the national life outside the schools, that vital intelligence of a people which maintains its institutions and establishes its ideals.

To return to the main proposition: The story of free public education in this country is founded on an altogether different basis from that of continental Europe. We educate all children alike, from their earliest years until the last year or two of the high school course. No discrimination is made or option given except those based upon the mental capacity of the pupil. As some one has tersely put it, "every child in the United States is educated in the possibility of one day becoming president of the country."

In continental Europe, on the other hand, the average child is destined from infancy to follow the occupation of his father, and it is only accident that throws him from this rut. His training is highly specialized from his earliest years with this object in view, and while he becomes manually the most expert workman in the world in his own particular craft, he has lost sight of the relations of his trade to every other trade, and has never gained that power of initiative essential to the highest success of an individual or of a state.

We believe the superiority of American workmen and American methods is due much more to the liberal training of our public school children until they are fourteen or fifteen years of age than to the extensive development of any form of special training. First develop the mind on broad and liberal lines so that, as a citizen, the pupil can grasp all sides of a question, and then build on this solid substructure the trade, profession, or specialty which he is to follow. He may not become a wage earner so quickly as under the specialization

process, but he will be a better and a safer one when he does begin.

In the educational exhibits at the Paris exposition of 1900 the feature which overshadowed all others in prominence, and which, by its dominance in every exhibit, characterized itself as the foremost educational thought in every foreign country, was industrial education. Whether it came from England, where it appeared in tentative, individual, and irregular forms; or France, where it has reached, under government statutes and municipal control, its highest development; or Hungary and Belgium, where the French dictum is law and the French influence paramount; or Japan, where it is directed rigidly toward those industries which make the wealth and trade of the nation, the object is to train the children of the masses for the trades and crafts which they will pursue through life, and to minimize the time within which they can become wage earners and producers of wealth.

Let us take the example of France, which with proverbial keenness descried many years ago the necessity of improved industrial methods to meet the demands of the times. In a circular issued by the minister of commerce and industries in 1893 the situation was summed up as follows:

"The keenness of international competition has revolutionized the conditions of trade. The wholesale use of machinery and minute subdivision of labor have practically extinguished apprenticeship in the workshops. Yet, in view of the constant changes to which machinery is subject, it is evident that there never was a time when it was so requisite that workmen should possess scientific knowledge, and should be thoroughly versed in all the requirements of the workshop. It is the special aim of the école pratique to fill the void which now exists both in commerce and industry."

It was at this time that the practice schools of commerce and industries (écoles pratiques de commerce et d'industrie) were established throughout France in order to make "special provision for the requirements of industry and commerce." They aim to furnish clerks and workmen ready to take their places in the counting room or workshops; and much of the work turned out by these pupils of fifteen to eighteen years

of age compares favorably with the best product of skilled labor. In addition to these schools there are also in France the professional schools (écoles primaries supérieures professionelles) under the department of primary instruction, which aim to give a certain amount of technical instruction as a preparation for apprenticeship.

If, then, our industrial and social development as a nation demands highly specialized technical training, we have the experience of an alert and fearless nation as a guide. We have for observation the manual training through all the grades of the elementary school, and the technical training in the superior and practical schools. Their mistakes can be avoided, their successes adopted. But do our needs demand it? That is the question. The preliminary report of a committee of the Society for the Promotion of Engineering Education, made in New York in July, 1900, on "American industrial education: what shall it be?" is presumably the strongest expression to be found for the necessity of manual and technical training in our schools, inasmuch as the sympathies and work of the society are entirely in that direction. Yet nowhere do we find a statement that it should displace any portion of the liberal and cultural education which is offered to the pupils of our schools, but, on the contrary, it is distinctly stated that it must be entirely supplemental to the mind informing and mind developing education. Lest there should be any misunderstanding, there is set forth in italics the sound doctrine that "in America all schooling should lead primarily to the elevation and development of the individual, and only secondarily to a greater material prosperity."

The committee further frankly states its inability to agree on the extent to which industrial training should be introduced in the various grades of schools, but confines itself rather to a discussion of the schools wherein all are agreed it should find some place. If, then, a committee of specialists cannot agree on this point, there is little likelihood that the great body of schoolmen or the general public will do so. There is probably little desirability that they should do so. Such a consensus of opinion would argue an industrial condition in this country which we do not want to contemplate.

The unanimity of France is the last resort of France. We prefer that variety in occupation which accompanies abundance of wealth and opportunity.

The truth is, the conditions which govern our growth and development prevent the possibility of a perpetual or hereditary working class. Such a state can exist only in an old aad stratified civilization, where all chances of sudden wealth and preferment have been exhausted, and nothing remains for the masses but to attain the highest possible industrial skill in the arts and trades. This is the rock on which every attempt to adopt foreign methods in toto in American systems must go to wreck. There is no common basis for adjustment. The differences are fundamental and incident to the different theory which underlies the spirit of popular education in the old world and the new. A freedom and elasticity is demanded in the educational system of our country to correspond to the possibilities existent in our material development. For this reason we have felt no marked sense of inferiority for the public schools of our country because they did not have this French machinery, or that German method, which has upset the equilibrium of many of our domestic critics. For the certainty exists that the same machinery which runs so smoothly and adaptably to the educational voltage of one country may be completely wrecked when applied to another. Minor detail, special features, and surface polish are easily copied from one system to another, but the real education of a country is too deeply rooted in the soil of heredity, politics, and precedent to stand much transplanting. We have a strong, virile system of schools, colleges, and universities, intrenched in the love of the people and built to meet their necessities. Let us not jeopardize it in our eagerness to introduce features adapted to a state of society to escape which this country was founded.

We submit, therefore, that the question under discussion comes down to this crucial point: Will a nation whose thousandfold forms of industry are maintained by labor trained on broad principles and liberal lines be more efficient than one whose labor is drilled in grooves—taught to do one thing well without knowing the correlation of that work to the economy

of the whole? That is exactly the difference between the free public education of Europe and the public school system of the United States.

Two or three remarkable incidents illustrative of the point in question have recently occurred. Some time ago the minister of commerce and industry of France recommended the establishment of a school of observation and drill on American industrial methods to be founded at some of the great industrial centers and to which French students might yearly be sent. This most significant tribute to the superiority of our methods on the part of the chief exponent of the contra system received its full emphasis when the University of Chicago accepted the gift of $1,000,000 from M. Lebaudy, the French capitalist, to found a department for exactly this purpose, to accommodate 600 French students, 200 to be sent over yearly.

At the close of the exposition of 1900, the director of machinery for the United States commission, a young man of thirty five, was offered $10,000 to go to Berlin to introduce American shop methods into a German factory. At the end of the year he was given $8,000 more to stay on for six months.

All of which means that the industrial supremacy of the United States is feared and acknowledged and that every effort will be made to keep even with our pace. These experiments are interesting and will doubtless be of some value, but they will fail to meet the expectations of their promoters. They lack the vital spark. For how are they going to introduce into European workshops the Yankee wit and cunning which guide the hand and brain of every employee in our establishments from errand boy to manager? It is not the superior executive machinery which the superintendents of our industries have created which causes our supremacy, but the superior average of intelligence which permeates every department and ramification of business—the intelligence which is the result of our free and liberal system of schools, and the other free educational agencies supplemental to them—the libraries, museums, lectures, and extension courses.

Such is the problem of the present day which is engrossing the attention of the statesmen and scientists of Europe; such the intense interest taken in the educational and industrial

development of our nation. They are seeking the cause of our industrial prominence, and they will find it, not in superior form of specialized training—they have a monopoly of that—but rather in the liberal training pursued in accordance with the theory and genius of our institutions.

One more argument should be touched in brief in discussing our educational system, viz., its influence in promoting the stability of our institutions. The education of a democracy determines its duration. We are engaged upon the greatest experiment in popular government the world has ever seen. Our remarkable progress should not blind us to the inherent danger of a republic. We have enjoyed a national existence for 125 years; Athens, when she fell before the usurpation of the tyrants, had been a republic 150 years; Rome, when she surrendered her liberties to the keeping of a Cæsar, had been a republic 450 years. I do not wish to pose as a crier of calamities, but there is no use in shutting our eyes to apparent conditions. Mankind is not yet very far on the road to the millennium, nor is it likely to be so while human nature is of such unregenerate material as at present. The advancing tide of socialism, the destructive doctrines of anarchy, the theories of Utopians, and false principles of government, can only be met by making our general public familiar with true economic principles. To bring economic science within the reach of the masses is the vital problem for a democracy. There is only one machinery that can effectually do this—continuous and extensive drill on the rational principles of political and social economics, during the formative period of the minds of our future citizens, is the only inoculant to protect our body politic. It is an old saying that every artisan philosophizes in his own way; but it is a responsibility that the state may well assume to teach him the right way. The strength and promise of our great country lie in the fact that this may be insisted on without lese majeste to a ruler, or enmity to a creed.

BUSINESS PRINCIPLES IN THE CONDUCT OF INDUSTRIES.

BY ROBERT H. THURSTON

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The business principles involved in the conduct of the industries of a country include two distinct codes; one of these should control the whole system of the nation; the other should guide the conduct of its details as affecting the individuals engaged in its various industries. These two codes are not entirely independent, and are not at all conflicting in their requirements. Both are simple and self evident in their formulas, and both are founded upon obvious and unquestionable principles. Both have their economic, their moral and their legal aspects, and, combined, they constitute the proper and only proper system of principles which should control all industrial operations. The national code should consist of the following fundamental laws:

1. The nation should make itself industrially, as well as politically, independent.

2. The national system of industries should be so adjusted and administered as to insure the production within its own borders, just as completely as may be practicable, the natural resources permitting, of all the essential industrial products of a civilized community.

3. Every natural resource should be developed as completely as possible and as efficiently as practicable.

4. The system of national industries should be made capable of employing every citizen in the field of work in which his talents make him most useful, and as continuously as is possible at his best rate of economical production. The population, as a whole, should be thus made in maximum degree contributive to the welfare of the world. The industrial system, considered as a machine, should be made thus in maximum degree economically efficient.

5. The political and the legal and the moral rights of every citizen should be maintained, and the best interests of the nation thus made to conspire with the highest interests and the individual rights of its citizens.

6. The fundamental principle to be at all times recognized and insured is that of maintenance of the law and preservation of the peace under the law, at all times and in all places and at all costs, even of life, if need be, by the constituted authorities.

The code for the citizen should include the following:

1. The right of every citizen to freedom, entire independence in right doing, and perfect liberty in the pursuit of happiness, financial competence, and a higher knowledge; to found a home and to educate children and to provide them with opportunity for similar success in life, should not only not be denied or infringed, but should be made a first consideration and emphatically assured.

2. Every individual should be assured of entire liberty to acquire education, property and the respect of his fellows, and of safety and permanence of all that he may gain by his own wisdom, experience, skill, industry, and frugality.

3. The individual, of whatever race, creed, or condition, and of whichever sex, should be made absolutely free to take up any vocation, to display his talents in any legitimate industry, and to work wherever, however, for whomsoever, and on whatever terms he may find to his liking. His right to make a bargain should be made absolutely safe and inviolate.

4. The right to individual freedom and independence should be recognized as second only to that to life itself, and the right to defend that right to the death should be a fundamental principle.

The moral right of the citizen and his duty are complementary. He should be assured of the one absolutely, and the other should be uncompromisingly exacted of him. His moral rights include perfect liberty of conscience and of judgment and entire liberty of action within the law. He should be guaranteed the right to form his own creed respecting social matters, as in matters of theology and of scientific deduction. He should be permitted to work by himself or with others of like views; he should be given freedom to act for himself as an individual or to join with others in co-operation in any good works. He should be compelled to permit every other citizen the enjoyment of the same rights.

He has the moral right to protection of life and liberty and to achievement and possession of his own. He has the right to train his children in what seem to him the wisest courses, and to educate them as far and as well as his circumstances permit, to obtain for them opportunity to make themselves in maximum degree useful to themselves, the family, and the world. He has a moral right to seek his own success in any legitimate path and in any form which may seem to him desirable—provided he does not infringe the individual or the collective rights of his neighbors. In any case of antagonizing interests he has a right, moral, and presumably legal, to demand that the rights and wrongs of the case be precisely defined, and that he be given his individual rights irrespective of the character, the position, the social or financial standing of the other man. But these rights must be defined by properly constituted authority and not by the interested participant in any dispute.

The legal rights of the citizen are simply the formulated expression of his moral rights and of his relations to the body politic. The legal code is the summary of the conclusions which a study of good morals and of industrial ethics in the light of good sense and of good morals and good manners compels. Laws contradictory to these principles are bad laws and should be exorcised from the statute books. The primary legal principle affecting the individual apart from the provisions of the criminal law is that which gives every man the right to make his own agreements and to conclude his own

bargains without impediment or interference. A bargain is an agreement entered into freely by two individuals, or two parties, each finding it profitable and satisfactory to himself. No man can be compelled to enter into an agreement in business matters or to make a bargain the result of which is not, in his view, the best that he can make and a profitable one to himself. Compulsory bargaining, like compulsory arbitration, is a contradiction of terms.

While it is physically possible for the state to formulate a code of law which may contain or involve a wrong principle or a bad practice, it is always to be assumed that reference to the constitution of the state or nation will lead the supreme legal authority to restore the code to correct form. The fundamental principle on which must rest all others, legally as well as socially and morally, is expressed in the maxim—"The state must maintain the law and must preserve the peace." When the law is maintained and the peace is preserved by the authorities all disputes must settle themselves without hostile meetings, and they always will be settled without endangering the individual, the state or the nation. This one maxim forces all ill disposed or unjust citizens to submit to ultimate justice.

Strikes and boycotts are, usually, simply endeavors, by forcible means, to compel another to make a bargain satisfactory only to the attacking party. They involve the endeavor to secure a bargain by compulsion which could not be secured with mutual advantage and by common agreement as the best for both parties that could be arranged at the time and under the circumstances. They preclude the separation of the two parties to the negotiation and freedom of both to open other negotiations where a proper and rightful bargain may be made. In either case one party determines that it should secure a better compensation for what it has to offer and then seeks to compel the other side to its own estimate of the value of its offering. When such efforts are made to secure compulsory agreement with the claims of the attacking party success can rarely be secured except by forcibly destroying all competition, and strikes are almost invariably accompanied by illegal violence and often by

public disorder, not infrequently by destruction of life and property. The whole tendency is toward the production of lawlessness, lack of respect for legal authority, and general demoralization. Where such violence and compulsory evasion of competition and a fairly complete monopoly of power are not observed the outcome is always simply that which natural industrial laws would bring about. If labor be plentiful, and its value, therefore, reduced, a strike will fail; when the class of labor needed is scarce, and its value, therefore, is high, a strike will generally succeed. But these results are simply the ordinary and normal outcome of the ultimately controlling principle in any case. Prices rise or fall as the supply is less or greater than the momentary demand. Employment being ample for all, prices of labor rise; the call for labor falling off, wages fall. If the wages are held constant by an artificial system or by brute force, the numbers employed will be less in hard times than the normal, and more people will suffer. In good times no more than all can be employed. The net result is probably a loss to the individual and to the country.

The nature and method of compulsory interference with the rights of any individual or body of men seeking a mutually agreed-upon contract are thus antagonistic to the principles of good business. They are usually resultant in harm, and in many ways. The employees have a legal and sometimes a moral right to retire from employment, precisely as has the individual,—no more, no less. The employer has the legal and sometimes the moral right to close an establishment and go out of business either temporarily or permanently; but when the legal right is exercised by either for the purpose of exercising compulsion in the making of a bargain, the moral right is exceeded. Either party may exercise this right in self defence or in self protection; but neither has the moral right to so act in compulsion of the other. Either side has a right to place a value on the article offered for sale, but neither has a right to compel the other to accept that valuation. If an agreement cannot be reached, the only proper course is for the two parties to separate and seek better terms elsewhere.

This often means a hardship, especially to the man without reserves; but that fact does not change the principles or the right of the question.

A peaceable strike is entirely legal, though often unwise; a forceful strike is both illegal and impolitic, as a rule, if not always. The nature and the method of the strike, as of the boycott, are contrary to good morals and good manners, even if not directly resultant in crime and infringement of the rights of neutrals. It is sometimes claimed that a strike is war and that, like war between nations, some methods and some acts are proper and right which are not right in time of peace. A strike is sometimes likened to justifiable rebellion, but it is to be remembered that usually a large majority of the other individuals composing the nation are directly or indirectly wronged by strife, and that only the nation can declare war. The courts uphold the right to strike and to combine to strike; but no court upholds the boycott, the strike, or the monopolizing of the right to labor, by the exertion of force against neutral members of society. The economic results of strikes, boycotts, and other irregular interference with the course of trade are always more or less disastrous. It rarely happens that even the side which gains the victory in such strifes secures compensation in full for its losses in war. The losing side invariably sacrifices largely by the strife. The country loses enormously through the interruption of production, and this is a loss which never can be repaired. Time and work lost are never recoverable. Such economic wastes are a tax on the whole community, and the acts which cause them are in direct conflict with the primary principles of industrial progress. The moral results of industrial strife are even more deplorable than the purely economic consequences. The loss of time, labor, and money is serious and far reaching, and ultimately tells against the best interests of the people; not unusually it leads to sacrifice of health and of life itself. The moral results are demoralization of whole communities, the loss of respect for law, and the promotion of disorder and crime. The subordination of the good to the bad, of the lawful and law abiding to the lawless and law breaking, means the degeneration of the nation and the introduction of anarchy.

It is the initiation of a retrograde movement of humanity which has its limit only in barbarism.

The social effects of industrial war are simply the natural outcome of economic inefficiency, of moral retrogression; the inevitable and always to be expected outcome of the infraction of those principles, practices, and methods which have been the slow evolution of the later centuries. It is not that the classes and the masses become sharply distinguished, but that the masses submerge the best classes, and with no possible chance, as now, of the advancement of the deserving to higher positions in the community and of the skillful, wise, industrious, and frugal to independence.

When a ship is wrecked on the rocks of a dangerous coast and its crew is cast into a boisterous sea, the only safety for the many is the prompt attainment by the few of a safe position on the shore from which to reach out a helping hand to the others. In any ship of state the best chances for the people come from the exertions of the able and competent and well disposed who have secured, by their skill, energy, ambition, and general efficiency, positions of security from which they may, and must, inevitably, through the operation of natural industrial laws, lend a helping hand to their fellows. Precisely as only the existence of men of learning can promote the education and the fitting of the teacher of the people, and, through them, the intelligence and knowledge needed by the people as a body, so it is only through the work of great men of business and the operations of great capitalists that the success of the people in gaining pecuniary independence can be assured in maximum amount. The legal aspects of the case are already well settled by the later decisions of the courts at law. The right of every man to act, individually or in co-operation with however many others, is assured by the laws of the state and by the dictates of good sense and good feeling, as well as by the law itself, up to that limit at which the individual or the association of individuals begins to infringe upon the rights of others. At that point limitation is necessary, and the enforcement of that limitation is essential to the life of the nation, as well as to the freedom and independence of the citizen.

The remedies for conditions producing economic inefficiency and industrial anarchy, for moral degeneration and social disorder, are as simple as are the conditions themselves and the causes from which they spring. These remedies may be readily applied and made thoroughly successful provided they are prescribed and enforced by wise, honest, determined, and patriotic men. The primary necessity in their application is an intelligent body politic; the next requirement is representation of the people by their best element and the construction of legislative bodies of wise, honest, determined, and patriotic representatives of the people. The final necessity is power to enforce the will of the well meaning and intelligent majority by legal and peaceful ways, when practicable, and by force if need be. The mob must be made powerless, the people all powerful. Disorder and crime must be promptly and sternly repressed and the natural and legal rights of every member of society, however humble or weak, assured against the criminal, the selfish, and the ignorant and foolish rebel against law and order. Educational remedies for the industrial diseases are found in the extension of the public school system throughout the whole nation and in the improvement of the system as a means of spreading throughout the whole mass of the people an intelligent apprehension of the principles bearing upon industrial questions and of the facts which are revealed by experience and by the history of our own and earlier times, illustrating the results, good and bad, of correct and of incorrect industrial methods. It is the common school system upon which we have learned to mainly rely to secure a general and liberal culture amongst the people, sufficient at least to enable the responsible citizen to understand and intelligently to vote upon the questions of the day in politics and in economics. The improvement of this system also insures a more efficient body of teachers for the next generation of children, for the teachers are mainly supplied by the common school system of education rather than by the colleges and universities. If these teachers are earnest and patriotic and intelligent and well informed, the next generation is likely to be similarly earnest, patriotic, and intelligent and well informed. If the race of teachers is improv-

ing, the race of citizens will improve. The improvement and extension of higher education is an important element of this progress. No stream can rise higher than its source. The loftiest source of learning, culture, and intellectual, if not of moral, progress is the university and its body of learned investigators, and the college with its great faculty of presumably wise men. These institutions are the ultimate sources of all contemporary learning and culture, wisdom, and real knowledge. With their advancement and with their progress in character, learning, and effectiveness in work goes the progress of a nation.

Legal remedies for industrial disorders are to be found in an intelligent and well digested system of legislation which shall, first of all, insure the maintenance of the law by its official representatives and their staffs and the preservation of the peace by every needed power of the individual officer, his staff, the municipality, the state, the nation if need be. The code should, further, insure to every citizen, without regard to age, sex, color, creed, or vocation, absolute freedom of action within the range of the moral law. Freedom and independence are the rightful heritage of every individual citizen, and freedom to engage in the pursuit of any innocent form of life, liberty and happiness should be maintained by the individual, at the risk of life, if need be, and guaranteed by the state at all hazards.

Life is worthless and governments are failures if the citizen is to be dominated by other powers than those of good laws, established and faithfully administered by the freely chosen representatives of the people. No individual and no class can be safely permitted, for an instant, to assert its right to rule over another, much less to attempt to establish that rule. The bad legislator should be condemned as a traitor, and, as such, punished in such manner that no one will be inclined to follow his dangerous example; the bad citizen, whether acting as an individual or with a class or a club or with a party, whether an executive of the law or a private citizen, should be given the same judgment and the same treatment. The individual seeking his own personal advantage at the sacrifice of the interests of his fellows, of the city,

or of the state or nation, should be legally placed in the same category and subject to the same judgment.

Social remedies for the economic and social errors of the time are to be found in the cultivation of a well defined and well established private and public sentiment in favor of good morals, good manners, and high culture, such that not only the individual, but the body politic shall constantly gain in these directions. When a nation, a state, a municipality, as a whole as well as individually, becomes accustomed to sustain good morals, to exhibit good manners and real courtesy, and illustrates a steady advance in true culture, its future and the safety, prosperity, and happiness of its people are assured so long as its neighbors do not forcibly interfere. Its chances of insuring its future despite the interference of others are also improved; for patriotism, intelligence, wisdom and courage are likely to be stimulated amongst such people as nowhere else. These social remedies will be administered most successfully through the educational system, which takes the child at a tender age, and, when its mind is most impressible, gives it a knowledge of the higher law and learning, and stimulates its moral and its æsthetic senses. The foul seeds which furnish the poisons of the body politic are cultivated by a few within their own families and in the secret club rooms of anarchist and of the Mafia. Their antidotes cannot be there applied, as a rule; they must be furnished to the whole nation through the education of its children. These antidotes are those which stimulate the growth and maintenance and refinement of those most beautiful products of civilization—good manners, good morals, and high culture. Compulsory application of remedies for social disorders is always a most undesirable though sometimes a necessary course of action. It should be applied, however, instantly and without hesitation, by the constituted authorities when it becomes evident that peaceable and kindly measures will not insure to individual citizens, or groups of citizens, their legal and political and moral rights. Every infraction of law and every breach of the peace should bring its prompt and appropriate check and punishment. Every forcible attempt to infringe upon the rights of a single citizen or a class should be instantly met

by the forces of the law and good government and crushed at whatever cost, and should then be followed by prompt and legal punishment of every lawless member of the treasonable party. This is a first principle; for it is upon this principle that the safety of the citizen, his life and property depends.

Industrial disputes should be settled, wherever possible, by arbitrament; but there are many questions which cannot be submitted to arbitration. No man could submit the question of his right to his wife, his child, his house, his land to arbitration. No man could allow any question to be raised regarding the right to offer or to accept what he knows to be for him a desirable exchange, in bargaining, whether in business or for pleasure. No compulsion can properly be permitted regarding any bargain. Arbitration is entirely right and usually wise where the two parties to a bargain, disagreeing, are desirous, or at least willing, to submit the question to a board of arbitration in the choice of which they have equal power and in whose judgment they have mutual confidence. But the law and constitution, if the latter were thus framed, would have no moral, and should have no legal right to prescribe compulsory bargaining. It is better for the nation that an industry be disrupted temporarily than that the rights of citizens should be denied.

The Pennsylvania anthracite strike during the year 1902 was one of the most famous of social disturbances; it was the first such great social disorder remedied by mutually agreed upon forms of arbitrament. It was the most serious disorder of that sort ever known to its date, and affected more seriously a greater area and a larger number of people outside the ranks of the disputants, and thus it became better known and understood and awakened a larger public interest than any other dispute in the industrial system of any country of this or of any earlier time. The dispute was one arising between organized miners and other workers in the Pennsylvania anthracite coal fields, under the official protection of the "United Mine Workers of America,"—a combination of practically all the miners of the United States, both bituminous and anthracite —on the one side, and, on the other, the proprietors and executive officers of the whole anthracite district. The points of

dispute were many and had long been taking form on both sides. On the part of the miners, shorter working hours, better pay, both for the day's work and for contract work, better arrangement regarding the measurement of the product of the day's labor, recognition of the union, and various privileges were demanded. On the part of the proprietors and managements of the mines, it was asserted that it was, as a matter of business, impracticable to award higher wages, to establish a shorter working day, or to modify in any important degree the methods or the details of working. It was claimed that it was impossible to officially recognize the union, composed, as it was, mainly of men whose work lay outside the anthracite fields, and who, officers and men alike, were entirely ignorant of the conditions prevailing in the anthracite fields. It was stated that the influence of the union had been wholly bad, and that it had become already impossible to maintain essential discipline to carry on the business in a satisfactory and profitable manner, and that conditions were constantly growing worse through the malevolent influence of the union. It was asserted that the union, instead of cultivating a fair minded attitude amongst the miners, rather sought to make the workmen assume an antagonistic and even actively hostile position and thus stimulated a warfare which was entirely wrong, as well as unfortunate from a business point of view. The interests of the employer and the employee were asserted to be identical, and it was urged that no organization capable of converting the two once friendly parties to the business into enemies, maintaining, at best, an armed truce, could or should be recognized officially.

The outcome of this dispute between the representatives of the two sides was the appeal of the miners to the national organization, the consultation of its head with the heads of the local unions, and, finally, when agreement was not reached, a strike which called out about a hundred and forty thousand men belonging to the national union and forced out of employment practically all other miners and destroyed the business of nearly all other industries in the anthracite coal region. It loaded upon the other miners of the country, in part, the support of the men on strike, and diverted large

sums of money collected by the unions from their members for the purpose, properly and impliedly, of caring for their sick, aged, and impoverished, into the support of industrial warfare. The result was the cessation for five months of all coal mining in the anthracite districts and the embarrassment of and often, toward the end, the infliction of suffering and death upon innocent people throughout a large portion of the United States and Canada. It was only when the approach of cold weather threatened the parties to the dispute with similar suffering and risk of life that the fight came to an end. The results had been enormously injurious not only to both parties to the controversy, but to the country at large. The mine owners were estimated to have lost about $46,000,000 and the miners and other employees about $25,000,000; the transportation companies also lost $28,000,000, while the loss to the nation through disturbance of business, the compulsory closing down of mills and factories, the going out of blast of furnaces, the check upon the coke and other more or less closely related industries, and the loss of working and earning power, through illness and death, directly and indirectly caused by this tremendous disturbance of all industries, has not been estimated, and can be stated only as beyond computation.

The demoralization of industries was perhaps even far exceeded in importance by the demoralization of the people, not only in the coal regions where law and the principles of good citizenship were most extensively and dangerously infringed upon, but throughout the nation. In the case of the anthracite strike universal uneasiness and distrust and a spirit of antagonism between employer and employee were awakened to an extent without parallel in the history of industry. Brother was set against brother, father against son. The attempt to maintain order and to support the law by use of the police powers of the state was often met with direct resistance, and, throughout the country, by endeavors on the part of the friends of organized labor to destroy the efficiency of the militia by creating a sentiment against the entrance of members of the unions into that essential instrument of protection of the law and of law abiding citizens. In some

states it was found necessary to enact special laws forbidding discrimination against union men for thus exhibiting their patriotism. Patriotism was by large bodies of citizens made a crime, and treason was encouraged and upheld.

The report of the commission appointed by the president of the United States with the later endorsement of congress, which body appropriated the needed funds for its compensation, was made only after a long, careful, and minute study of the case, and after receiving the testimony of all available witnesses and hearing the arguments of both parties to the dispute, represented by the ablest counsel. It covered all the specific questions raised, and a discussion of the details of the testimony and of the principles involved from the point of view of law and of equity, as well as of economic and criminal law. It was decided that it would be right to raise somewhat the wages paid in the anthracite coal fields, to shorten, in some cases, the length of the working day, and to adopt, in other cases, a sliding scale of payment of coal produced, basing the scale upon the prices obtained for the coal at tide water in New York harbor. It was reported that the pay previously given was not by any means as low compared with that of other vocations as had been claimed, and that the workers in the mines were able to adopt a scale of living fairly comparable with that attained by labor of similar grade in other occupations or in other coal fields. It provided for a conciliation commission to settle disputes that might later occur, and that the agreements made under the award should hold until 1906, the advances dating from November, 1902. This should be followed by other and new agreements made by mutual understanding. The decision forbade discrimination between union and non-union men, abolished the "Coal and Iron Police" employed and paid by the mine owners, recommended new and better laws against the employment of children, and advised state and national laws providing for compulsory investigation, but not of arbitration, of future contests of a similar sort.

The conclusions reached by the commission as just summarized were given broadest statement in the final sections of the report in which the general principles involved were

discussed. Regarding lawlessness, such as so extensively characterized this great contest, it asserted that no industry is more dependent, for its success, its safety and its non interruption, upon discipline than is the vocation of coal mining It is a dangerous and a troublesome work at best and in the most skillful hands and directed by the best of supervision. None other is more dependent upon mutual understanding and mutual support in the maintenance of discipline. "Discrimination and interference weaken all discipline." The most rigid and efficient discipline should be established and maintained by the co-operation of both employer and employed. The calling out of the militia was a justifiable, a reasonable, an entirely proper, and, in fact, a necessary, act. "No peaceable and law abiding citizen has reason to fear or to resent the presence of either,"—guards or militia. Absence of protest and of active resistance on the part of law abiding citizens is an encouragement to disorder. The law can make no exceptions, and it must use every available power to maintain itself and to preserve the peace. Peaceable striking is not contrary to law or to reason; but a strike set on foot with the purpose of forcibly compelling all opposition to cease until it gains its object "violates the law from the beginning." A large strike always tends to encourage lawlessness and to engender crime. The organization bringing about such strikes voluntarily accepts these risks and this responsibility, and is bound, in law and in justice, to provide against and to prevent such results. "Only so can they deserve and attain the respect of good citizenship. A labor or other organization whose purpose can be accomplished only by the violation of the law and order of society has no right to exist."

The right to work or to remain at work, to cease work or to go to work under any conditions, themselves not in conflict with law, cannot be rightfully or lawfully denied or restricted, whatever the character or the opinions of the worker or the would-be non-worker. In that matter every man is a law unto himself, and has a right so to be, at all times and in all places, in time of strikes or at any other time. Compulsions exerted to sustain or to destroy a strike are alike "immoral and anti-social." Concerted attempts to restrain the

liberty of the citizen in these respects constitute "a conspiracy at common law," and should be punished as such. The "boycott" is condemned as "tyranny, pure and simple, and, as such, hateful." The claim that the conditions affecting a strike are those of "war" between the parties to the dispute was made, but this is denied by the commission. "There is only one war making power, and that is the government. War between citizens is not to be tolerated, and cannot, in the proper sense, exist; it is unlawful, and it is to be put down by the sovereign power of the state and the nation." The "black-list" is condemned with the "boycott." Both are cruel and cowardly. Finally, "it is adjudged and awarded that no person shall be refused employment or in any way discriminated against on account of membership or of non-membership in any labor organization."

The future of labor organizations, during the period of strife and excitement of the Pennsylvania anthracite miners' strike, seemed to many onlookers extremely uncertain. It appeared as at least a possibility that but one of two developments could occur,—either the labor unions would succeed in mastering the whole organization of the industries and would bring about chaos by depriving it of its generalship by talent evolved by experience and proved ability from the midst of the whole body of citizens; or a worse chaos, anarchy, would be caused by the destruction of the body politic and the provocation of strife without control of law, and with the result of destroying law and order and all safety of property for an indefinite period. On the other hand, should the unions lose in the great contest, it was feared by many good citizens that it would be impossible for the employees to secure even a fair share of the product of their part of the wealth produced by "the triple partnership, labor, capital, and ability," and that, consequently, the country and the world would be checked, if not turned back, in the path of progress. The outcome of this particularly threatening and injurious contest, however, while revealing the fact that such struggles are liable sometimes to cover so large an extent of territory, to affect so large a fraction of the industrial system, and to involve such important industries as to produce most costly and dan-

gerous effects, indicated that there, nevertheless, may be found peaceful and righteous methods of settlement, so that the outcome may, in the end, cause important and desirable improvements in the methods of conduct of business, and bring about better conditions of life and work for the protestants against the older conditions.

The organization of the union has been already modified by these events, and a revolt against lawless and unfair methods of prosecution of the purposes of the organization itself has been consequent upon these unhappy experiences. Unions had been long in existence, both in the United States and in Great Britain, which had recognized the inherent wrong in strikes, lockouts, and especially the evasion or infraction of the law and the provocation of disorder and attacks on the rights of the citizen. Law and order above all had been the motto of a considerable number of such unions, where the most intelligent and patriotic and prudent of employees had been banded together for the peaceful accomplishment of rightful purposes. Their constitutions and by-laws had sometimes explicitly declared for correct moral, legal, and economic methods. All the older and most successful unions had long exhibited a tendency in this direction, and the greater their experience and the more intelligent and skillful their administration, the less the frequency of resort to force or to compulsory bargaining. In one case, that of a union formed after the close of the struggle just described, the organization was incorporated, and its articles of incorporation include this declaration of principles:

"This association shall encourage industry, economy, thrift, and honesty among its members; maintain amicable relations between employees and employers of labor; assist its members in obtaining the highest wages consistent with the general good of all concerned; promote all forms of productive industry and increase the employment of labor at good wages; prevent unjust and unreasonable discrimination against any of its members by any person, combination, or conspiracy to prevent such members from securing employment in any branch of industry, and protect and defend its members against any and all attempts by any person or com-

bination of persons to abridge the inalienable right of all mankind to work for such wages as shall be mutually satisfactory to the individual workman and his employer."

Legal incorporation is coming to be more generally recognized as both fair and wise, and the deliberate assumption of legal responsibility for the acts of the organization is becoming more usual. The courts are also forcing this responsibility upon all organizations. The administration of organizations, both of employees and of employers, must be probably steadily improved by the recognition of the fundamental principles of law, equity, and economics by their members. Mutual agreement, after careful and fair minded deliberation over the respective rights and needs of the parties to industrial disputes, must probably supersede, ultimately, all attempts at compulsory bargaining, and the absolute contradiction of these terms will be well understood as soon as both sides begin to deliberate in a friendly spirit. The common interests of both parties in maintaining, uninterruptedly and efficiently, the steady operation of every industry under conditions assuring the opportunity to every individual to contribute in maximum degree through his individual ability and talent, and giving him every opportunity to advance to the position in which his talents and his character may have full play in promotion of the good of all, is becoming understood and admitted, and the administration of all organizations of whatever kind or character on such principles may be hoped for in the early future.

The methods of operation must ultimately become those of parliaments seeking the best and most correct, just and efficient ways of promoting common interests and of reconciling conflicting claims. The organization of industries and the organizations of employers and of employees will be found to have common and perfectly reconcilable purposes, and the good of the people of all classes and vocations will be found to be subserved by the adoption of legal and equitable systems to procedure. The most intelligent, conservative, wise, and prudent individuals will necessarily ultimately control and lead the organization, and the progress of the industries will be proportional to the spread of intelligence, pa-

triotism, honesty, and fairness amongst the membership. When the growth of this system of studying and of handling industrial problems shall have brought about in maximum degree steady industry for the masses, utilization of individual capabilities and opportunity for gravitation of talent into places of responsibility, the whole industrial system will become, in the highest degree, efficient. Then, and only then, can the nation attain its highest position on the scale of civilization and its people become in the highest degree wealthy, comfortable, contented, and happy.

The coming problems are thus those of promoting the advance of the nation to the highest point of industrial efficiency and the resultant assurance of greatest prosperity, content, and intelligence. Only where a nation is in maximum degree wealthy, and its people, as a mass, comfortable and competent to think out the problems of its time, can a real and a permanent higher life be assured. The whole history of mankind is an illustration of the growth of these principles and of the progress of the race in proportion as they are more generally recognized and acted upon. Invention, progress in the arts and sciences, and growth of education, of general intelligence, of wisdom and of culture conspire in the promotion of the highest and best interests of all.

WHO OWNS THE RAILROADS?

BY SOLOMON HUEBNER.

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In a study of the distribution of stockholdings in American railways we touch upon a question which, as associated with the fundamental institution of private property, has a most important bearing upon our social, economic, and political life. The ownership of property tends, above all, to create a sentiment favoring conservatism. The greater the number of individuals participating in the ownership of property, the greater will be the number interested in promoting the safety and conservatism of property, and the advancement of industry. The effect of the diffused ownership of stockholdings, for example, upon our economic life may be readily observed. Being owners in a great enterprise, the large number of smaller holders are thus prompted by self interest to view economic questions from the standpoint of an employer. In the industrial struggles between labor and capital, a widely diffused ownership of stock may be of the greatest importance in molding public sentiment with reference to the demands of the contending parties. The holding of a single or a few shares in a large corporation may not only cause the holder to feel a greater interest in the welfare of his particular concern, but may cause him, in a general way, to observe and feel as a member of the employing class. Moreover, a large corporation by widely distributing the ownership of its stocks and bonds, especially if it be among an influential class, will thereby safeguard its interests and privileges through an increased political constituency. Railways, for example, whose stocks and bonds are held by thousands of holders may be expected to

exert a powerful influence in the legislatures of their respective states.

These and other considerations point to the conclusion that the economic and social effects, resulting either from a wide diffusion or a high degree of concentration in the ownership of stockholdings, are both numerous and important. Yet, significant as a study of the distribution of stockholders in American railways may be in this respect, we find ourselves confronted with all the difficulties which beset the question of the distribution of wealth in general. As Professor Mayo-Smith has remarked: "Almost all statistical analyses of the actual distribution of wealth break down on account of the imperfections of the statistics." And it is especially in the study of the distribution of railway stock, probably more so than in the case of wealth in general, that we find the materials at our disposal not only very incomplete, but also extremely limited. In fact, reliance had to be placed almost wholly upon individual statements concerning certain particular roads, and upon the statements of the amount of capital stock issued and outstanding, and the total number of stockholders for the various roads at the date of the last election of the directors, as collected under the authority of the railway commissioners of the various states. This latter source, however, is by no means complete. In many states, especially the southern, with the exception of Alabama, Louisiana, and Virginia, the railway commission reports furnish no information whatever on the subject; and in no case do the reports give the exact distribution of the capital stock among the holders. This absence of conclusive material determines largely the mode of treatment to be followed, and fixes in a general way the limits of the conclusions. The attempt is made, therefore, to present, briefly, the distribution of stockholdings in those few railways where the evidence is direct and conclusive; and to present tables showing respectively those important railways whose stock is owned by a comparatively large number of stockholders, those where concentration is apparent; and, lastly, those important railways whose stock is concentrated in the hands of a few holders. Despite the many defects in the materials, it is believed that

a compilation of the data presented in the railway commission reports, if supplemented by such considerations as are necessarily involved in a statistical treatment of this kind, cannot fail to add something to our knowledge of the subject under discussion.

Passing now to an examination of specific railways, we find that the Illinois Central stands out most prominently in the effort to diffuse the ownership of its stock among small holders, especially its employees. According to Mr. Cressey, "No other railroad has adopted a plan to this purpose approaching in extent or liberality that devised by President Stuyvesant Fish. Other roads, however, have made commendable efforts in this direction, and among these may be mentioned the Chicago Great Western system. Of the 6,526 stockholders of the Illinois Central in 1900, 705 were officers and employees of the company, other than directors, and held stock to the amount of 2,554 shares. Three thousand eight hundred and sixty eight of these stockholders, owning 346,207 shares, were residents of the United States; 2,543, owning 198,616 shares, were residents of Great Britain; 115, owning 55,125 shares, were residents elsewhere. Excluding one large block of 40,000 shares held by a Dutch syndicate for thirty years, and itself divided among hundreds of holders, the average number of shares per holder is eighty five and one half. According to the books of the company there are "5 holdings of 5,000 shares or over; 85 of 1,000 shares or over; 93 of 500 shares or over; 694 of less than 500, but more than 100; 455 of exactly 100 shares each, and 5,194 of less than 100 shares." Approximately thus 80 per cent of the stockholders own less than one hundred shares each, and the fact is emphasized that it is the 5,194 small stockholders who own by far the majority of the stock.

Equally favorable appears to be the distribution of stock in the Boston and Albany and the Boston and Maine railways. The capital stock of the Boston and Albany, aggregating $25,000,000, is distributed among 8,434 stockholders. The largest of these stockholders owns but 3,000 shares, while at least 4,645 holders, or 54 per cent of the total number, hold less than ten shares each. As regards the Boston and Maine rail-

road, the annual report for 1899–1900 places the number of shares of that company at 250,345, and the number of stockholders at 7,148. Of this number of stockholders 4,575, residing in Massachusetts, owned 124,030 shares; 1,515, residing in New Hampshire, owned 29,212 shares; 599, residing in Maine, owned 18,349 shares; 459, residing elsewhere, owned 60,678 shares, while 18,076 shares of common stock were owned by the company itself. From this report it also appears that approximately 7 per cent of the largest stockholders of the company owned 26 per cent of the stock.

Another illustration of the wide diffusion of stock ownership in some of our great railways is afforded in the Atchison, Topeka and Santa Fé railway. This road, the most important of the southwestern roads, and the greatest of the "independent systems," has its capital stock of $233,468,000 distributed among 13,147 stockholders. The two facts according to Mr. Thomas F. Woodlock that distinguish this road from other large western roads are: (1) "That alone of all transcontinental lines it extends from Chicago to San Francisco," and (2) "That there is no dominant stockholding interest or combination of interests in control of the property. . . . And it is the only large system in the west that nobody in particular owns or specially controls." According to Mr. Woodlock, "the ownership of the Atchison road became thoroughly scattered in the reorganization and afterwards." "I am credibly informed," he writes, "that Messrs. Baring and the interest known as the 'Berwind Pool' are at present the only examples of concentrated ownership in the company, and that all three combined are a relatively small percentage of the whole."

Directing our attention next to an examination of the distribution of the capital stock of railways other than those just considered, reliance had to be placed upon the data furnished by the latest available state railroad commission reports, namely those of 1900 and 1901. In the following four tables an attempt has been made to group this data. Table I. includes those important railways whose stock is owned by a large number of stockholders. Table II. presents those important railways whose number of stockholders is not unusually small, but where concentration in stockholding is ap-

parent. Table III. comprises those important railways whose capital stock is owned by a comparatively small number of stockholders, while Table IV. shows the distribution of stock in New England railways with a capital stock of $1,000,000 or over.

Table I.

Name of Railway Company.	Amount of Capital Stock.	Total number of Shareholders.
Atchison, Topeka & Santa Fé	$233,486,000	13,147
Boston & Albany	25,000,000	8,434
Boston & Maine	26,516,970	7,229
Chicago Great Western	68,572,074	3,627
Chicago, Milwaukee & St. Paul	100,480,200	5,786
Chicago & Northwestern	66,227,320	4,260
Chicago, Rock Island & Pacific	59,988,260	2,934
Cleveland, Cincinnati, Chicago & St. Louis	38,418,307	2,197
Delaware & Hudson	35,000,000	3,958
Fitchburg	24,360,000	5,935
Illinois Central	66,000,000	6,526
Lehigh Valley	40,441,100	6,916
Long Island	12,000,000	646
Louisville & Nashville	55,000,000	1,982
Minneapolis & St. Louis	10,000,000	448
New York Central & Hudson River	115,000,000	10,329
New York, New Haven & Hartford	54,685,400	9,560
New York, Ontario & Western	58,118,982	2,056
Old Colony	16,617,625	5,331
Pennsylvania Railroad company	204,374,850	29,090
Pere Marquette	28,000,000	2,098
Union Pacific	203,600,000	12,450

Table II.

Name of Railway Company.	Amount of Capital Stock.	Total number of Shareholders.
Atlantic Coast line	$ 34,280,500	874
Buffalo, Rochester & Pittsburg	12,000,000	224
Burlington, Cedar Rapids & Northern	8,887,380	325
Chesapeake & Ohio	86,000,000	1,145
Chicago, Burlington & Quincy	110,800,000	616
Chicago, St. Paul, Minneapolis & Omaha	34,050,126	1,019
Duluth, South Shore & Atlantic	22,000,000	350
Great Northern	123,853,300	1,835
Kansas & Colorado Pacific	25,498,100	156
Kansas City, Pittsburg & Gulf	23,000,000	325
Lake Shore & Michigan Southern	50,000,000	708
Minneapolis, St. Paul & Sault Ste. Marie	21,000,000	148
Michigan Central	18,738,000	563
Missouri, Kansas & Texas	72,569,200	1,080
The Missouri Pacific	76,402,875	889
New York, Chicago & St. Louis	30,000,000	677
Norfolk & Western	89,000,000	1,876
Southern Pacific	197,832,148	968
St. Louis & San Francisco	50,000,000	1,416
St. Louis Southwestern	36,000,000	778
Texas & Pacific	38,760,110	916
Western New York & Pennsylvania	20,000,000	176

Table III.

Name of Railway Company.	Amount of Capital Stock.	Total number of Shareholders.
Arkansas & Choctaw railway	$ 15,230,000	6
Chicago, St. Louis & New Orleans	10,000,000	22
Cincinnati & Northern	6,800,000	6
Dubuque & Sioux City	10,999,600	31
Eastern Railway company of Minnesota	16,000,000	6
Erie Railroad company	176,000,000	17
Fremont, Elkhorn & Missouri Valley	36,940,000	8
Kansas City, Fort Scott & Memphis	28,510,000	17
Kansas City Southern	51,000,000	15
Northern Pacific	155,000,000	17
Morgan's Louisiana & Texas Railroad and Steamship company	15,000,000	6
Southern Railway company	180,000,000	13
St. Joseph & Grand Island	13,598,500	9
St. Louis, Iron Mountain & Southern	25,795,055	32
St. Paul, Minneapolis & Manitoba	20,000,000	69
The New England Railroad company	25,000,000	51
Wilmar & Sioux Falls	7,000,000	6
Wisconsin Central	30,000,000	12
Yazoo & Mississippi Valley	6,168,400	14

NEW ENGLAND RAILROADS.

Table IV.

Name of Railway Company.	Amount of Capital Stock.	Total number of Shareholders
Boston & Lowell	$6,529,400	2,142
Boston & Providence	4,000,000	1,668
Connecticut River railroad	2,630,000	952
New Haven & Northampton	2,460,000	7
New London Northern	1,500,000	379
Providence & Worcester	3,500,000	902
Vermont & Massachusetts	3,193,000	1,312
Worcester, Nashua & Rochester	3,099,800	805
Boston & New York Air line	3,907,968	610
Central New England	6,600,000	277
Hartford & Connecticut Western	2,712,800	641
Naugatuck Railway company	2,000,000	463
Norwich & Worcester	3,006,600	941
Atlantic & St. Lawrence	5,484,000	1,647
Concord & Montreal	7,197,600	2,214
Maine Central	4,975,300	824
Manchester & Lawrence	1,000,000	545
Northern Railroad company	3,068,400	1,179
Bennington & Rutland	1,000,000	8
Newport & Richford	3,200,000	9
Rutland railroad	6,719,700	about 600
St. Johnsbury & Lake Champlain	3,848,500	432
Vermont Valley	1,000.000	59
Bangor & Aroostook	2,178,307	24
Grand Trunk railway	5,484,000	1,630
Portland & Rumford Falls	1,000,000	50
Washington County Railroad company	1,999,000	27

A glance at the foregoing tables reveals a striking contrast between different railways as to the proportion between the

amount of their stock and the number of their stockholders. From the evidence submitted for the twenty two railways included in Table I., aggregating $1,541,887,088 of capital stock, it appears that railway stock is to a large extent distributed among a great number of holders. Thus the number of stockholders for these twenty two roads is 144,840, and for the New England railways with a capitalization of $1,000,000 or over is in excess of 20,000. Upon glancing at Table II., however, we find the number of stockholders comparatively small, and in Table III. exceedingly small considering the large capitalization of the roads.

Proceeding to a closer analysis of these tables, we find that the average stockholding for all the roads of Table I. amounts to $10,646 per stockholder. This comparatively low average, however, loses some of its significance when we remember that seven roads—the Atchison, Topeka and Santa Fé; the Union Pacific; Chicago, Milwaukee and St. Paul; Louisville and Nashville; New York, Ontario and Western; Chicago, Rock Island and Pacific, and the Chicago Great Western—aggregating $779,245,516 of capital stock, or over one half of the total stock of these twenty two roads, have an average stockholding of $18,561 per holder.

In Table II. the concentration becomes much more marked. Having a capital stock of $1,180,871,739, the twenty two railroads of this table have a total of but 17,064 stockholders, and an average stockholding of $69,463 per holder. As in Table I., however, this average partially loses its significance, since eight roads—the Chicago, Burlington and Quincy; the Chesapeake and Ohio; the Great Northern; Kansas and Colorado Pacific; Minneapolis, St. Paul and Sault Ste. Marie; Missouri Pacific; Southern Pacific, and Western New York and Pennsylvania—with a total capital stock of $643,387,023 or over one half of the total capital stock of these twenty two roads, have an average stockholding of $108,442. Moreover, three roads—the Southern Pacific; Chicago, Burlington and Quincy, and Kansas and Colorado Pacific—with capital stock aggregating nearly 30 per cent of the total stock represented in this table, have average stockholdings of $187,777, $179,871, and $163,577 respectively.

If, for the purpose of comparison, we look now at Table III., we note a still greater contrast than exists between the railways of Tables I. and II. The nineteen important roads represented here have their aggregate stock of $829,041,555 distributed among but 357 stockholders, having thus an average holding of $2,322,245 per holder. Three of the roads, however—the Erie railway, the Northern Pacific, and the Southern railway—with an aggregate capital stock of $511,000,000, or five eighths of the total capital stock represented by this table, have an average stockholding of $10,872,340 per holder.

It will doubtless be urged with reference to these averages that, owing to the rapid changes in stock ownership, they have value only for the particular year for which they are compiled. In fact there is scarcely any ownership of property more transitory than the ownership of railway stock. In this connection the statistics of the New York stock exchange for 1901 may be studied to advantage. In that year the total number of shares sold at the exchange numbered 249,193,674, representing a par value of $24,254,887,825; and by far the great majority of these stocks constituted railway stocks. Indeed, within the year 1901 the total number of listed shares for some of the leading railways was sold from ten to twenty times over. Thus the Milwaukee-St. Paul stock was sold twenty times over; the Union Pacific stock twenty one and one quarter times; Rock Island stock thirteen and one half times; Wabash preferred stock twelve and one half times; Atchison stock eleven and seven eighths times, and Erie stock ten times.

Such a volume of stock transactions would seem to indicate that the above statistics can have but a temporary value. As a matter of fact, however, when we compile statistics for a considerable number of railways for different periods, we find that the proportion between the amount of stock and the number of holders shows an increase in the average stockholding sufficiently large to indicate that the above tables rather underrate than overestimate the average stockholding in railways at the present time. A few statistics will corroborate this statement. Thus as regards eleven rail-

ways of Table I., for which information could be found, the capital stock increased from approximately $650,834,038 in 1890 to $942,946,162 in 1900 or 45 per cent; while during the same period the number of stockholders increased from 54,-928 to 75,528 or 37 per cent. In other words, the average stockholding for these eleven roads increased from $11,848 to $12,486, or over 8 per cent. Again, in seventeen of the twenty two railways of Table I., for which information was available, the capital stock increased since 1895 from approximately $875,296,724 to $1,143,512,238 or over 32 per cent; the number of stockholders increased from 92,029 to 100,532 or over 9 per cent, and the average stockholding increased from $9,318 to $11,435 or over 22 per cent. Similarly in Table II., we find that eleven railways have increased their capital stock since 1890 from $350,106,859 to $564,251,559 or over 61 per cent. During the same period the number of stockholders decreased from 20,109 to 7,980 or over two and a half times, thus increasing the average stockholding from $17,410 to $70,708 or over four times. More significant by far has been the increase of the average stockholding of the railways of Table III. Since 1890 eleven of these roads have increased their capital stock from approximately $387,419,427 to $523,-048,100 or nearly 35 per cent. Within the same period the number of stockholders has decreased from 6,215 to 239, while the average stockholding has increased over thirty five times. Despite, therefore, the rapid changes in stock ownership, the railways of the foregoing three tables show, on the whole, a marked tendency towards an increased average stockholding. The above tables, if they err in any direction, may be regarded as underrating rather than overstating the average stockholding at the present time.

Thus far, then, we have taken into account the average stockholding of leading railways whose capital stock aggregates $3,551,800,382 or about 60 per cent of the total railway stock of the country. Directing our attention to the distribution of stock of the smaller roads, our only guide, again, consists in the state railroad commission reports. An examination of the latest of these reports indicates that the stock of the smaller roads in the west is held by comparatively few

investors and that the stock, on the whole, becomes more and more widely diffused as we go eastward, especially towards the New England states. Thus from the preceding tables it appears that the six principal New England railways, with stock aggregating $172,000,000, show the exceedingly large number of 36,540 stockholders. Likewise Table IV., including those New England railways with stock of $1,000,000 or over, shows an exceedingly large number of stockholders in view of the small capitalization of the roads. In short, the twenty seven railways included in this table have their aggregate stock of $93,294,375 distributed among 20,347 stockholders. When to the railways of Table IV. are added the roads with stock of less than $1,000,000, the railway commission reports of Connecticut, Massachusetts, Maine, and New Hampshire show the total number of stockholders for the roads represented in these states, and for which calculation can be made, to be 28,923. The average stockholding in these roads for Connecticut is placed by the reports at approximately $7,041. Maine follows next with an average holding of $5,486, while Massachusetts and New Hampshire have the extremely low averages of $3,146 and $3,451 respectively. If we could carry our inquiry to all the railways represented in all the New England states, it is safe to assume from the above calculations that the total number of stockholders of New England railways would be considerably in excess of 70,000. If, however, we extend our inquiry to the smaller roads outside of New England the average seems considerably larger. Thus the average amount of stock per holder in all the railways considered by the reports, and for which calculation could be made, is, approximately, $156,638 in Minnesota, $110,600 in Louisiana, and $72,320 in Kansas. Of the remaining states for which calculations were possible, the greatest average stockholding ($49,484) is shown in Arkansas. Alabama follows next with an average of approximately $43,239, and then Michigan with an average of $33,859. In New York the average stockholding for such roads, other than proprietary and lesser surface steam railway companies, is approximately $18,582, and in Virginia $15,849.

If the averages presented in the preceding paragraph are correct, the conclusion suggested is that, excluding the New England railways and the roads represented in Table I., the stock owned by the average holder is comparatively large. A closer investigation will reveal the fact, however, that the question is not fully determined by merely presenting the average stockholding for the roads of each of the four groups. It is manifest that while the above averages present the minimum concentration of stock among the so-called "stockholders," they do not take account of the fact that these stockholders do not in all cases necessarily represent individual holders, but may in some cases represent corporations. In the first place, one railway corporation, itself representing many stockholders, may be the holder of a portion of the stock of another railway company. Or considerable blocks of such securities may be held by trust companies, life insurance companies, investment companies, etc., which in turn represent the investments of a large number of persons, many of whom belong to the middle and poorer classes. How far this process of subdivision must be carried in order to fairly determine the extent to which the population of the country is now involved in railway ownership, it is difficult to judge. Suffice it to say, that large blocks of railway securities are held in this way, and that this indirect form of investment is rapidly increasing. Thus on July 1, 1901, the general stock investments of the trust companies of New York city alone aggregated over $209,000,000. Even in the case of savings banks, whose investment powers have been very carefully safeguarded, a change of policy is manifesting itself. Since 1899, for example, the three states of New York, Massachusetts, and Connecticut were obliged, owing to the rapid increase of the deposits, to extend the power of these institutions to invest to a limited degree in railway securities. While no available statistics exist on this phase of our subject, we may nevertheless conclude that this subdivision of the stockholdings in railway securities, especially when we remember that trust companies, investment companies, and the like, representing the merging together of a large number of small and separately owned capitals, do actually hold large blocks of rail-

way shares, points unmistakably to a very widely diffused ownership. Nothing more strikingly illustrates the extent to which this diffused ownership may exist in some of our leading railways, than the statement of Mr. J. J. Hill to the effect that "when the Chicago, Burlington and Quincy railroad was taken into the Northern Securities company some 2,000 of its 18,000 stockholders owned five shares each and 300 owned one share each." The eastern trunk lines were reported to have had their stock distributed among 99,829 shareholders in the year 1896, and the Pennsylvania railroad company reported that 40 per cent of its shareholders were women.

One other exception to the above averages is pertinent to our discussion. This exception, while it does not in the least disprove the wide diffusion of stock ownership indicated by the foregoing process of subdivision, does tend to show, on the contrary, a large degree of concentration of stock in individual hands. To rely merely upon the preceding averages, it is clear, would prove inadequate for our purpose, since they do not afford an exact criterion of the actual proportion of stock held by the different shareholders. The concentration of stock ownership in individual hands, as indicated by these averages, becomes all the greater when we remember, first, that the above tables fail to show the unequal distribution of the stock among the shareholders of any given road, which as a practical matter of fact we know exists; and, secondly, that they do not take cognizance of the very common fact that the well-to-do stockholders of one railway, though owning far more than their proportionate share, also own stock in a large number of other roads.

How unequal the stock of a particular railway may be distributed among its holders is well illustrated in the case of the Fitchburg and New England railways. With the exception of the Boston and Albany, the Boston and Maine, and the Old Colony railways, the Fitchburg Railroad company represents the lowest average stockholding of the roads of Table I. Yet 624 of its stockholders, or those residing in New Hampshire, own but $871,300 of its $24,360,000 of capital stock; while 1,119 of its 5,935 stockholders own but

$1,440,000. More significant, still, is the instance of the inequality of ownership afforded in the case of the New England Railroad company. This company has its capital stock of $25,000,000 distributed among fifty one stockholders, and with but three exceptions shows the largest average stockholding of the nineteen roads included in Table III. Yet twenty six, or one half of these fifty one stockholders, according to the Massachusetts Railway commission report, owned but $55,000 of the capital stock, or slightly more than one five hundredth part of the total.

Having thus illustrated the unequal distribution of stock among the owners of a given road, which illustrations may be almost indefinitely multiplied, we may now inquire briefly into the second point, the ownership of stock by one individual in several or many roads. To what extent this multiple ownership exists is partly indicated by a comparison of the directorates of a number of the leading railways with a view of noticing to what degree the names of the directors of various railways duplicate one another. For the purpose of this comparison, the names of the directors of the ninety principal railways, as published in the state railroad commission reports, and including the directors of all the roads of Tables I., II., and III., were examined. After a tabular analysis had been made, and all duplications had been eliminated, it was found that the total number of positions in the directorates of these ninety roads was 819 and the total number of individual directors 393. Of this number of individual directors one was the director of fifteen roads, aggregating over $929,000,000 of capital stock, and one the director of fourteen roads aggregating over $565,000,000 of capital stock. Three were the directors of twelve roads each; one of these directors representing capital stock to the extent of $765,000,000, and the remaining two over $367,000,000 each. One was the director of eleven roads with a total capital stock of $572,000,000; one the director of ten roads whose total stock exceeded $656,000,000, and two the directors of eight roads whose stock reached $541,000,000 in the one case, and $565,000,000 in the other. Of the remaining directors, two were the directors of seven roads; eight the directors of six

roads; fourteen the directors of five roads; thirteen the directors of four roads, and forty the directors of three roads. In brief, eighty six of these 393 directors represented at least three of these important roads, and 192, or nearly one half of the total number, were found to be directors of two of these roads or more.

In the foregoing paragraphs we have reviewed, as briefly as the subject permits, some of the considerations which assist us in arriving at some conclusion with reference to our subject.

In the first place, from the evidence submitted it appears that railway stock is to a large extent owned by a great number of holders scattered throughout the country, and representing every stratum of society. The Illinois Central, we saw, stood out conspicuously in its attempt to extend the ownership of stock to its employees. The Boston & Albany and the Boston & Maine railroads likewise had their stock distributed almost entirely among small holders. The Pennsylvania railroad has its capital stock of $204,000,000 distributed among 29,000 individual stockholders. With reference to the New England railways, we noted that the stock was distributed among at least 70,000 stockholders, while the total number of shareholders for the roads of Table I exceeded 144,000. Recognizing that some of these stockholders may in turn represent corporations, it becomes apparent that in our great railways the number of small individual owners is exceedingly large. Indeed, it has been estimated by Mr. George B. Blanchard that the total number of holders of railway stock reaches 950,000, and that the total number of stockholders and bondholders combined approximates 1,250,000.

Secondly, in accordance with the statistics presented, we have determined the average stockholding per holder of railways aggregating approximately $3,822,214,000, or nearly 65 per cent of the total railway stock of the country. A survey of the smaller roads showed that outside of the New England states, the average stockholding was comparatively large, ranging from a maximum of $156,638 in Minnesota to a minimum of $15,849 in Virginia. With reference to the more important railways, we noted that the average stockholding

for twenty two of these roads, representing $1,541,887,088, was $10,646. In twenty two of these roads, aggregating $1,180,871,739 of stock, the average stockholding was $69,463; while in nineteen roads, representing a capital stock of $829,-041,555, the average stockholding reached $2,322,245. By regrouping these railways, however, it was found that over one half of the total capital stock of the first group is held in average holdings of $18,561; that over 55 per cent of the total capital stock of the second group is held in average holdings of $108,000, and that five eighths of the total capital stock of the third group is held in average holdings of $10,872,340.

These averages, it is true, are modified by the fact that as several small corporations become financially interested in, or are merged into, a larger railway corporation, the number of small stockholders may thereby be increased many times. But the effect of this increase upon a wider diffusion of railway stock, it is believed, is more than neutralized by the counter-tendency of well-to-do individual stockholders to acquire stock in a large number of such undertakings. Indeed, we have seen that this multiple ownership on the part of individual stockholders exists to an exceedingly large extent. If we recall, furthermore, that the average stockholding for the roads of the first three tables has shown a decided tendency to increase, and that great extremes of stock ownership exist even in most of the roads of Table I, we may conclude with a rough degree of accuracy that the above tables present, on the whole, a far too conservative view of the actual concentration of railway stock in individual hands at the present time. Concentration certainly does manifest itself strongly in the roads included in Tables II and III. And, if the composition of the comparatively low averages of the railways of Table I could be ascertained, to see whether they are made up of great extremes or not, it seems probable, from the above considerations, that by far the majority of the large number of stockholders cited for these roads represent small investors, and that the majority of the stock, in many, if not in a majority of these roads, is held by a comparatively few large holders.

SOME ECONOMIC ASPECTS OF ELECTRIC POWER DISTRIBUTION.

BY LOUIS BELL.

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Much of the complicated mechanism which we are pleased to call modern civilization has for its purpose the survival of the unfittest and the subversion of natural laws. Instead of punishing criminals, we spin fine drawn theories about them and turn them loose to be a drag upon the progress of decent society. Instead of segregating degenerates in suitable asylums, we form societies for the study of their literary and artistic works and pay two dollars per seat to hear their mephitic plays. We treat economic laws with even more contempt than civil and criminal laws. Professors of the dismal science sometimes speak of the law of supply and demand as bearing at least some remote relation to actual human needs, while in reality the basis of many movements in modern industry is the substitution of an artificial law for the natural one. If vested interests have acquired an unprofitable railroad, which upon a sound commercial basis should not have been built prior to 1950, there is at once a cry for such a "readjustment" of rates as shall charge up the loss to communities along lines which were more wisely planned. Fortunately, civilization brings good along with evil; and while there is terrible loss of energy in the artificial methods employed, there is still progress, not so much perhaps as the world flatters itself in thinking, but progress nevertheless.

In the last resort, the substance of civilization is human development—all the rest is accident. The Greeks had no knowledge of steamships railroads, electric lights, telegraphs,

or automobiles—they would have offered hemlock to the man who tried to start a telephone exchange; and yet no people ever reached a higher plane of thought or action. Likewise our little Japanese friends, cheerfully hailed as barbarians fifty years ago, had in reality risen to a mental and spiritual height that enabled them in thirty years to grasp the material advances of well nigh thirty centuries.

The lesson to be learned, then, is to value the achievements of modern science and industry not upon their proceeds in dollars and cents next week or next year, but by their effect upon the growth of human kind and the evolution of society. In discussing, then, the effects of a particular branch of technical progress, it should be considered in this broader aspect, not merely from the so-called "economic" standpoint, which is concerned exclusively with the balance sheet. To come down to the concrete, in the larger view of things it is of little consequence that John Doe should contract for electric power at an annual saving of $10,000, as in nine cases out of ten he will merely put the money in his pocket; the real importance of the gain is measured by the number of people benefited by it. If, on the other hand, the contract enables John Doe to put out his goods at a lower price, or to reduce the hours of labor, or to do anything else to the advantage of his fellowman as well as himself, that contract is of direct value to the community. On the contrary, if a similar contract enables Richard Roe to start an industry where none was before, to open a new bit of territory to human activity, the community is at once directly the gainer and electric power is no longer an instrument of private gain, but of general welfare.

Of course, one may say that all private gain goes ultimately to the increase of industry; but unhappily the self constituted redistributor of wealth is not always a philanthropist in the proper sense of the term, and vague and indirect methods are usually inefficient ones. The special topic of interest here is the direct usefulness of electric power in the generalization of human activity, rather than its impossible indirect value in enabling John Doe's heirs to assist in developing the French automobile industry.

The distribution of manufactures in our own or any other country would be a most curious and interesting subject of study. The first thing to stand out conspicuously in the investigation would be the gradual tendency toward concentration in the larger cities, and the gradual recession of manufactures outside them. Certain sections of the country are full of decaying communities, once active, but from which the chief industries have been withdrawn. If investigation disclosed the fact that certain centers of manufactures had become such through the pre-eminent natural advantages, such a condition would be easily explained; but in fact, natural advantages have comparatively little to do with the matter. It is common enough to find large manufacturing plants of a particular kind concentrated in a place that is only moderately good as a working point. Some one shrewdly managed factory has made a success there, and has gathered others about it till by sheer force of output and combination of interests they have frozen out the scattered factories with small capital. Taking into account the steady tendency of population to move toward the cities for various causes, the outlook for local enterprises seems far from good. In fact, the situation is fraught with the gravest dangers to the community at large. A country consisting mainly of large cities with merely incidental rural population has taken a long step toward final disintegration. Moreover, even if actual disintegration is not eminent, there exists the curious and anomalous condition of a community in which the transportation and distribution of commodities is the predominant element—in which producer and consumer stand at the ends of a long chain of intermediaries. It is bad enough in this respect, even at present, but every step toward further concentration of industry and population makes it worse. No country in which the productive forces are steadily being subordinated to an intricate (and, upon the whole, wasteful) mechanism of distribution can long remain prosperous.

It is the recognition of this general principle that is the basis of the present agitation for regulation of railway rates and of similar movements.

Starting with the condition that wide distribution of industries is desirable in order to render more simple and efficient the mechanism of commerce, there are two prominent factors in the problem at hand. The first is improvement in the organization of transportation so that needless work can be in part eliminated. The second is such an equalization of the industrial conditions that bear upon manufacture as shall minimize the legitimate need for transportation. For economical manufacturing, one must have moderate costs of raw material, labor, and power. The two former are strongly affected by transportation conditions, as is also the last named when its source is fuel.

The importance of electric power distribution from this standpoint is already great and will become greater. If one takes a map showing the distribution of the coal in the United States, it is at once apparent that by far the greater part of the territory either has no fuel at all, or little, and that of poor quality. Wood has been practically eliminated from the question by the rapacious wastefulness of the last quarter of a century. Hence as regards the country at large there is a heavy transportation charge on power. Within the past ten years we have learned to utilize the water powers of the country (which, by the way, are as a whole in regions having least fuel) and cheap electric power has already done much to open new fields to manufacture, especially in the south, which is the natural field for cotton manufacture. In one particular the present working of hydraulic power is very faulty, and to this defect I wish to direct especial attention. In spite of the great growth of electric power transmission, its effect on the consumption of fuel has thus far been very small, owing to the fact that the great mass of hydraulic power, which is in small units, has practically not been touched at all.

Of our total water power, probably four fifths is in falls below 1,000 horsepower in capacity, and at the present time money can rarely be found for the development of small enterprises of this kind. Bankers as a rule have not the slightest interest in these small permanent investments. They will lend moderate amounts upon quick assets, but

frankly say—and with a showing of truth—that they handle a bond issue of millions with no more labor than one of a hundred thousand, and with ten times the profit.

To my personal knowledge, there are scores of water powers in New England able to furnish preposterously cheap power for small investment by transmission of trivial length, but they are cases for private investment and not for "financing." By utilizing such privileges it will often be possible for small industries to obtain power at less than half the cost paid by their larger competitors. The present adverse factors are mainly due to transportation. Putting aside the instances of deliberate discrimination in rates—which are altogether too common—there is a strong general tendency toward punishing the industries in small places situated on non-competitive lines. At this point the electric railway is beginning to come in as an ameliorating influence, and if its development is allowed to go on unimpeded, much good will be done. Every electric railway network means a readier market for every point touched, and when light freight haulage becomes more general the influence will be strongly felt, unless the non-urban communities are foolish enough to allow electric systems to be captured by the steam roads which now hold the field. The small hydraulic powers already referred to are well able to furnish cheap motive power for transportation, if given the chance, and thus to make the regions served more self supporting and self reliant.

The effect of cheap electric power in encouraging and conserving small industries has already been well demonstrated, particularly abroad. In several regions on the continent its introduction has preserved the industrial automony of large groups of villages threatened with extinction by the very forces more conspiciously active in the United States. Since the existence of a small industrial center means increased prosperity in all the region about it, the value of such a policy to the country is all the more evident.

Bearing in mind the cost of transportation, the manufactures which can profitably be carried on in small places having cheap power available are especially those in which the value of the finished product is due mainly to the expendi-

ture of power and labor, in particular, highly skilled labor. Besides these, there are also some industries in which the raw material can be obtained locally. It is sometimes popularly supposed that skilled labor is not easily obtained outside of considerable cities. It is perfectly true that in certain lines skillful workmen are now mostly to be found in large industrial centers, but on the other hand, they are the easiest class to get away from these centers when good employment offers. It is the ordinary "lumper" who is most gregarious and who is most unhappy when withdrawn from the associations of the city. And in fact, in small places where the workmen are stable and responsive members of the community the difficulties of the labor situation are at a minimum.

To come to concrete figures, there are to-day many unutilized powers ranging from 200 to 500 horsepower that can be acquired and developed, including electric transmission of moderate length, for about $100 per horsepower delivered. They are cheap simply because they are on rather small streams easily controlled in places where at present there is a small demand for power. A factory wishing power can thus obtain it, as the investment cost shows at a very moderate rate, and in the majority of instances can get the few hours of hydraulic storage necessary for utilizing enough of the energy for lighting to offset no inconsiderable part of the expenses. There are now not a few small industries clustered about little water powers, but electric transmission has yet to play its part in bringing isolated waterfalls into use where there are existing facilities for transportation. It is almost an untouched field, and one of great promise.

As an extension of the same idea one should consider the new phase of power transmission which unites into networks the available powers of a considerable region. This is the basic principle of some very considerable systems and applies with equal force to smaller ones. Given three or four small powers within a few miles of one another, and when united they can not only furnish their aggregate power at one or several points but are generally available for an amount considerably greater than the sum of their nominal powers. It often happens that one of the lot has available storage greater

than would be advisable to utilize independently, but which can be used very economically to help out the entire group. I call to mind one case with several plants on the same stream where the storage of the upper one can be conveniently used by all those below, the time of flow between consecutive stations being sufficient to equalize the output very neatly. Moreover, when several plants are united in a network, the need for duplicate lines is diminished, since most points of the network are fed from at least two directions.

Carrying out this principle it is quite feasible to group and utilize several powers, individually of modest size, so as to put electrical power into many places where it would be profitable to use it; into every conveniently situated village in a county for the upbuilding of local industries. That which is already done profitably over an area of many thousand square miles can certainly be made highly successful over a few hundred square miles. This work with small powers is relatively very easy, for the distance of transmission are generally very moderate, so that no problem of extreme high voltage is involved; the developments of the hydraulic side are usually easy, since the volume of water to be controlled is small, and simple methods can be used throughout. It is now common practice to run several transmission plants in multiple, so that nothing is to be feared on the operative side of the work. The sole difficulty is the financial one, rising from the small amount of securities involved and a certain disinclination to consider country affairs seriously. The work is emphatically one most profitably to be undertaken by local interests, interested directly in earning power rather than promotion.

As power propositions are generally financed, the funded debt is expected to cover the whole expenditure, including profits to those who handle the bonds, the entire stock issued being aqua pura. Under these conditions the absence of large stock dividends is not evidence of poor business. On the cash actually put in, a well planned power plant, even on a small scale, will generally pay a handsome rate of interest after setting aside a liberal reserve for maintaining the value of the property.

In caring for small industries and developing local resources, continental Europe is far ahead of the United States. In France, Germany, and Switzerland, there has been a keen interest in preserving manufactures against the inroads of centralization, and a good many electrical plants, both large and small, have had this aim in view. The task is rendered easier by close governmental control of transportation. In America, on the contrary, the tendency toward industrial centralization is at present very strong, and almost wholly uncontrolled. Each census shows worse conditions in this respect, without compensating advantages. It is small glory to have rapidly growing cities fed by depletion of the rest of the country, when at the same time economic waste is increased.

The practical problem to be solved is to make the non-urban regions industrially more useful; and as already pointed out, electric power distribution and communication gives at least one efficient decentralizing agency. In a concrete case things would work out somewhat as follows:

A factory starts up in a small town with transportation facilities now reasonably good. With some aid from local interests, it takes up and improves a neglected water power a few miles away; and, not needing the whole output, sells what it can for power and light, thus obtaining its own power at a very low figure. It brings in workmen, not as waifs, but as permanent residents, casting their lot definitely with the community. Presently ability to get cheap motive power starts some one else at working a small shop; a few more workmen come, business in general begins to feel the effects of the movement, and before long another water power is pressed into service and tied in with the first, picking up another village on the way with a casual shop and a little lighting.

By this time the influx of workmen encourages the starting of an extra store or two; then another factory, scenting cheap power, comes along and settles down to business. The united water powers are pretty well loaded, but then the community is now thoroughly interested; some enterprising individuals pick up a third power ten or a dozen miles off, develop it, and add it to the others, catching an

incidental village or two on the way. Each added community adds a few shops, and before long it is time for a little electric road connecting all with the railway. A little telephone exchange starts up and gets connected with the long distance lines, and within a few years the whole region, covered by the electric network, takes on an air of new prosperity; population increases, the farmers find a home market, and instead of a decaying backwoods community with one lonely general store, a tumble down church, and a cider mill, we have a lively little group of towns, each hustling to get ahead of the others, in close touch with the nearer cities, and a part of the industrial world. There are to-day little manufacturing specialties that are known everywhere, and with decent utilization of natural resources to give cheap power, their number might be increased tenfold. And the modest prosperity thus acquired is stable to a far greater degree than that which depends upon huge urban aggregations of manufacture. A little factory does not shut down because a prominent broker has been speculating too freely, or because a foreman has employed a nonunion scrub woman.

Technically, the task of organizing a power network for such uses is very straightforward indeed. It simply means following out intelligently principles already familiar. The transmission and distribution of the power is done generally by ordinary polyphase methods, which may perhaps be supplemented more or less by single phase circuits for small powers. Abroad, some few plants have tried continuous current distribution with series motors, but the high motor voltages are objectionable on the score of safety. The most interesting feature of engineering small plants lies in the tactful use of water storage. For example, take a power giving 300 horsepower off the shaft of the wheel. The normal generator in such a case would be of about 200 kilowatts capacity. This could easily be used up in power and could be put to use in lighting only after the period when lap load occurs. But flash boards and two or three acres of storage at a working head of, say, twenty five feet, would put another hundred kilowatts into service for the couple of hours necessary to carry the load over the peak, so that the plant could earn

moderately at least, for twenty four hours per day, at no great added expense. A few additional acres will sometimes work wonders. I call to mind, right in New England, several instances in which, at a low figure, enough storage is attainable to carry a plant over the entire dry summer season. The trouble heretofore in the electrical power business has been that men were hunting for big streams with several thousand horsepower available for long transmissions to the larger cities, and altogether overlooked scores of available small powers, relatively much cheaper to develop and with far nearer markets.

The number of big transmissions is necessarily limited—there is but one Niagara, but one great cataract in Zambesi. Though the former may be loaded to its utmost, and the latter may turn every wheel from the equator to the cape, the bulk of the world's power will still remain in small units. The world's coal supply, while in the aggregate probably much larger than is generally supposed, is being drawn upon at a rate that implies, merely from increased difficulties of mining and lengthened transportation, a steady increase in price; but the rains will still fall and the rivers flow when our coal has to come from Thibet or Matabeleland.

Long before that time, the industrial salvation of a country will be the utilization of its smaller powers. And every beginning made now will help to put off the day when the earth will have to call on the skies for heat as well as motive power, or shift its activities nearer the tropics. Meanwhile the prosperity of our own and other countries depends upon opening wider areas to human activity, instead of still further confining it to great centers of population.

AMERICAN LUMBER.

BY B. E. FERNOW.

[Bernhard Eduard Fernow, director and dean, New York State college of forestry; Cornell university since 1898; born Inowraclaw, Posen, Prussia, January 7, 1851; educated at gymnasium, Bromberg forest academy, Muenden, and university of Konigsberg; came to United States in 1876 and engaged in metallurgical business; chief division of forestry, United States department of agriculture, 1886–98; chairman executive committee and first vice-president American Forestry Association; was for some time editor of The Forester; Author: The White Pine, Economics of Forestry.]

One thousand million dollars a year is the wood bill of the people of the United States for materials which they derive from the virgin forest without any expenditure except for harvesting and shaping the treasures, stored for centuries for their use. About one half of this value represents the cost of firewood, fencing, and other smaller materials, as hoop poles for coopers' use, hop poles, bean poles, and the like, while the other half is for lumber and other material that requires bolt or log size and forms the basis of our enormous wood consuming industries, which double the value of the raw product by turning it into houses and barns, cradles and coffins, tools and toys, and the ten thousand uses to which it is adapted and upon which our modern civilization depends. We hear much about the mining industry, the coal fields, the importance of the iron and steel industry, and about gold or silver we nearly came to civic war. And yet the value of these last two products is not one tenth in their annual output of what the forest furnishes; the iron and steel industry furnishes hardly one half the values of the forest, and if we put all the mineral products, coal, metal, petroleum, and every earthy material together, they fall forty per cent below the value of the forest products, excelling the most valuable portion of these, the sawmill product, only by about fifty per cent. With such a showing we are justified in placing our forest resources as second only in importance to agriculture; wood crops next to food crops, both equally indispensable.

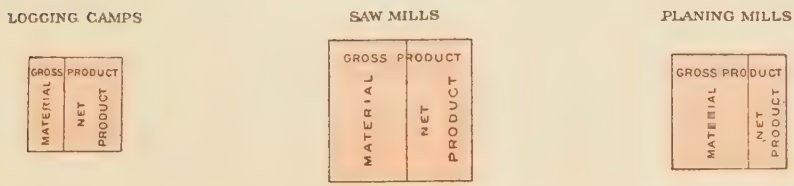
No other country in the world has been so blessed with useful tree species as the United States. While some of the tropic countries excel not only in the extent of their forest areas, but also in the total number of the arborescent forms, they fail to produce the variety of qualities which we find in our forest wealth, and especially are these countries deficient in that class of timber which is most needful for a rapid development of civilization, namely, construction materials. So it happens that Brazil, in spite of its endless forests, imports its building timber and lumber from us, and the distance to Australia is not large enough to prevent us from supplying those English colonies with lumber from the Pacific coast, in spite of the magnificent forests of eucalyptus and other species, which, good enough for some purposes, are not as serviceable as our conifers.

A combination of qualities, which offers lightest weight compatible with greatest strength and stiffness, ease of working and the possibility of securing large quantities of long and clear material, is what we look for in building timber, and this combination is found in the coniferous woods, the pines, spruces, firs, cedars, redwoods, hemlocks, cypress, which are called "soft woods" by the lumberman, although some of them are rather harder than some of those called "hard woods," among which are classed all the broad leafed trees, no matter whether they are soft or hard, when worked with cutting instruments. In addition to their qualities, the fact that these coniferous species occur gregariously makes their cheap exploitation possible and adds to their value. The northern temperate zones abound in this class of woods and one may not improperly ascribe to this fact, in part at least, the rapid progress of civilization in these regions. Without such cheaply and easily transported material the development of the vast prairies would have been at least much slower and more difficult, if not impossible. Few of the settlers in those forestless regions realize the debt of gratitude they owe to the forest.

Again, no other country in the temperate zone can boast of such a variety, enormous development in size, and large quantities of these most useful species as we command in

LUMBER INDUSTRY AND ITS PRODUCTS

MATERIALS AND PRODUCTS



the United States. While Europe has only one or two or at best three species of pines, all of the yellow or hard pine tribe, we can offer at least ten useful in the arts, both soft and hard pines, out of the thirty six native species. Among the soft wood pines, the king of the pines, the apple among the woods, acceptable in almost any form, the white pine, is ours, and its congener on the Pacific coast, the sugar pine, with its cones a foot and more long, and its trunks towering 250 to 300 feet skyward, with diameters of ten to twelve feet. We boast of the long leaf pine, or Georgia pine, in the south, which excels among the hard pines, useful for heavy construction, every other pine known to the world. Again, instead of one species of spruce found in Europe, we count at least four of our five species as timber trees; instead of one fir, we have five or six fit for lumber out of the ten or twelve species, and two instead of one larch. In addition we have, with the bald cypress, two kinds of hemlock, four cedars, and a juniper, two arbor vitæ, with the redwoods and Douglas spruce, species of which no representatives of useful size or quantity may be found in Europe. If we were to canvass the deciduous leafed trees, oaks, hickories, birches, walnut, maples, ashes, elms, basswood, magnolias, tulip tree, sweet gum, sycamore, and poplars, we would find the same difference in our favor. Altogether, while it would be stretching the characteristic of a useful tree considerably if we recognized around twenty five species as such in Europe, we would be within very reasonable limits if we claimed to have in the 450 species indigenous to the United States at least 125 that are useful in the arts and of abundant occurrence, although only forty or fifty appear now quoted in trade papers. Such wealth of material, occurring over large areas, has naturally led to a lavish use of wood and to the development of a lumber industry which is in its extent and its methods unique in the world.

We use every year eight times as much wood and more than three times as much lumber as the frugal Germans and at least four times as much lumber as our cousins in Great Britain, who have to import almost every stick they use and have learned to substitute stone and iron where possible. How foolish must those good people appear, who in the fear

of the evil consequences of forest destruction propose to stop the lumberman from cutting any more trees. Look around you and learn how much we depend on wood in our daily life; you will then understand that we shall always need lumbermen to cut and make useful the trees of the forest, albeit we may get the lumberman to adopt somewhat different methods from those he pursues now, or to associate him with the forester who knows how to cut trees so that they will produce a good new crop, or, where needed, plants them.

Not only has the lumberman furnished the most essential materials for the building up of our civilization in all parts of the country, but he has often carried the first germs of civilization into the deepest wilderness of our vast forests.

The lumber business of to-day, which employs, together with the planing mills, nearly 550,000 people and pays annually nearly $150,000,000 in wages, is indeed a very different affair from what it was a hundred years, nay, fifty years ago, when logging was confined to the eastern coast and river courses, which furnished the means of transportation for the bulky material.

It is the development of the railroad system that has changed the methods of lumbering, just as it has changed all other kinds of business.

Before the era of railroad building the lumbering went on in a hand-to-mouth fashion and most of the sawing was done in connection with gristmills, charging their toll just as they did for flour, the lumber being mainly for home consumption or else going to the mouth of the river to be carried by vessel to home and foreign markets. That this petty method of doing business lasted until the middle of the century is attested by the census of 1840, where the lumber industry is credited with a product of only $400 per establishment; this figure rose to $8,136 in 1870, $9,704 in 1880, more than doubled in the next decade, namely to $19,212 in 1890, and in the subsequent ten years slightly declined, namely to $17,159 in 1900; showing how the character of the business has changed.

In 1860, although pine lumbering in the northwest had already begun to be a leading industry, the great logging

streams of later years were hardly yet mentioned. It was after the war, when the development of the railroad system opened up virgin forest areas of vast extent and wealth, that the enormous expansion of the lumber trade with its modern machinery and modern methods began. Railroads have not only brought distant lumber centers within easy reach of markets but they have even penetrated the woods themselves, connecting the mill directly with the sources of supply, reducing although not superseding the river drive. Under the enormous competition thus stimulated and with ever new virgin woods coming to development, most wasteful treatment of the seemingly boundless and inexhaustible forest wealth was the consequence, and now we are only just learning that there is no such thing as inexhaustible supplies. We are not only becoming aware of the fact that our forest area is comparatively small, considering the vast extent of our country and our rapidly growing population, but the really good timber in it is not so plentiful as the acreage might lead one to think, and it is confined to certain localities.

There are large areas of woodlands encumbering the soil, but economically speaking they are not of any value, being covered with scrubby growth of tree weeds which prevent the recuperation of the valuable kinds that have been culled out by the lumbermen, and thus the ground is left to their undesirable competitors. Hence, while there are about 500,000,000 acres of land covered with some kind of forest growth, thousands, nay millions of these acres do not contain any merchantable material or even promising young growth.

Our annual cut has reached such dimensions that if we had our forest area in as good condition and as well managed as the German state forests are, we would have to have 600,000,000 acres in first-class order to furnish annually our requirements. We would then cut every year say six million acres, allowing 100 years in the average for the trees to grow that are to be cut—at present most of the trees from which we derive our lumber are over 150 or 200 years, and the giants on the Pacific coast have taken 500 to 1,000 years and more to reach their dimensions. Under present conditions, when we only exploit our virgin forests to secure the five and one half

billion cubic feet of log timber which are to furnish our forty billion feet of lumber, timber, and bolts, we cull over probably not less than ten to twelve million acres, taking out the best kinds and best trees and leaving the ground to the undesirable kinds and trees, preventing a satisfactory young growth to take the place of what we have removed. And if perchance a young growth starts, a natural phenomenon—natural only, or mainly, to the United States—the ever recurring forest fires, will sweep it off. It is now even admitted by lumbermen, those who have a fuller acquaintance with the country, that our "inexhaustible" forest wealth is sufficiently reduced to call for restorative measures, such as the art of forestry teaches. The state of New York has perhaps taken the most advanced step in that direction by not only buying up the culled forest lands in the Adirondack mountains but by establishing a state college of forestry in connection with Cornell university, where the art of forestry is to be taught as a profession and the foresters to handle and recuperate the state property are to be educated.

The geography of our lumber supplies is such that we can recognize lumbering regions, each of which furnishes the bulk of one or more staples to the lumber market. Thus Michigan, Wisconsin, and Minnesota monopolize the white pine market; the Southern Atlantic and Gulf states contain the bulk of our hard pines, while the hard woods are mainly furnished by the central states, with Tennessee the greatest producer. The state of Maine, the Pine tree state, has long ceased to supply much of the white pine, from which it derived its name. Spruce for pulp is now its principal lumber product, although the birch and maple in which it abounds but which are hardly yet cut to any large extent will some day become more valuable. Spruce also is the main lumber tree of New Hampshire, while the rest of the New England states are cut out of all valuable coniferous material and also largely of their hard woods, the majority of the woodlands being coppice growth, fit for firewood and small dimension material only. The state of New York, which of all the states in 1850 furnished still the largest amount of lumber, especially white pine, now only has spruce and hemlock left to furnish staple

goods for the market and hardly counts among the lumbering states. Pennsylvania is in the same condition, hemlock being its main staple, although some white pine and hard woods still furnish the basis for its large sawmill capacity. Williamsport once was the great lumber market of the United States, but by the beginning of the seventies this prestige had been transferred to Chicago, which drew its supplies of white pine, the greatest staple of the American market, from Michigan, Wisconsin, and Minnesota. The great lumber industries which made Saginaw, Mich., famous all over the world reached their climax of production in 1882. Now the cut in Michigan has sunk from two and one half billion feet board measure in 1882 to less than one billion. Wisconsin reached its maximum cut in 1892 with over four billion feet, which has now come down to less than two and one half; while Minnesota's cut is still on the increase. These figures refer to white pine and show plainly that this our greatest staple is rapidly nearing the end of supplies. Then when this great source of wealth has ceased to flow, what remains of hard woods in these great lumbering states will perhaps be more carefully handled.

The great hardwood market to-day is, however, at St. Louis, to which are tributary the magnificent hardwood forests of the Mississippi bottom and its affluents. Here the white and red oaks are kings of the market, as the white pine in Chicago, ash and hickory, sycamore and cottonwood—for this last species too has become an important material for boxes, etc.—and the long despised, but lately highly appreciated red gum, or liquidambar, are supplying the furniture, carriage, cooperage, and other woodworking trades.

The southern pineries have not developed any one great center of distribution for their matchless ware of hard yellow pines, longleaf and Cuban, which both go under the name of Georgia pine, although they are found from North Carolina to Texas; shortleaf pine, which goes in the trade as North Carolina pine although it is as well developed in Missouri and Arkansas, and loblolly or Virginia pine, which accompanies the other two to Arkansas and Texas. Here, too, the bald cypress, most fine grained and durable of conifers, grows in the swamps, having its greatest development around New

Orleans, where the cypress association controls the market. In the south we must seek the supplies of building material for the next century, at least the first half, for even here supplies are not inexhaustible and the naval store industry, followed usually by forest fires, assists in decimating them. From the west we have so far not drawn much. The distance forbids shipment by rail of the bulky material except for special purposes. But when the Panama canal shall have established a short water connection the magnificent giants of redwood—if any shall be left by that time—of the soft sugar pine and the hard yellow pine, and, best of all construction timbers, the Douglas spruce, in the trade called yellow or red fir, will be welcome substitutes for the kinds which we shall then find becoming scarce on the eastern side of the continent. We shall then also appreciate some kinds which now we despise, the magnificent hemlock of the Pacific coast and the giant larch of the interior basin, which now are mostly only destroyed by forest fires. Before another generation shall have passed, however, we shall have learned that we can and must get along with less lumber, build of iron and stone those structures which are better built of those materials, and reserve wood for those uses for which it is indispensable, namely, where non conductivity of heat and electricity are essential.

THE COMMERCE AND INDUSTRIES OF THE WEST.

BY LESLIE M. SHAW.

[Leslie M. Shaw, secretary of the treasury, United States; born, Morristown, Vt., November 2, 1848; graduate Cornell college, Mt. Vernon, Iowa, 1874; Iowa college of law, 1876; practiced law at Denison, Iowa, since 1876; president, Bank of Denison; also Bank of Manila, Ia.; gained prominence as a McKinley advocate, 1896; elected governor of Iowa for two terms, 1898–1902; appointed secretary of the treasury, United States, February 1, 1902.]

Where shall the line be stretched separating the east from the west? Mason and Dixon's line, at one time supposed to mark the boundary of a section of our country, has been so far obliterated, that to be mentioned except to rejoice at its disappearance is an offense to modern politics and alike to modern commerce.

Where shall the freight borne by the Mississippi river and the Illinois Central double tracked railway paralleling this great waterway on its eastern bank, be classed? The Southern Pacific conveys more than seven hundred cars per day, a quarter of a million per annum, of transcontinental freight. Is this eastern, western, or southern commerce? Because traffic originates on the Atlantic coast and is sent westward via the Golden Gate and the Pacific to the far east, is it therefore eastern commerce? Is not at least that portion which touches the gulf southern commerce? It all crosses the Rocky mountains, and hence, I make mention of it as western commerce.

Chicago sends eastward over trunk lines of railroad one hundred and fifty tons of provisions each hour of the calendar year; Minneapolis exports four million barrels of flour per annum; Duluth and Superior forward by way of the lakes, sixty five million bushels of grain; Duluth, West Superior, and Milwaukee receive from the east cargoes of coal aggregating three million tons per annum; Buffalo receives from the west, and by the same great waterway, one hundred and

fifty million bushels of grain; Escanaba, Duluth, and Two Harbors ship twelve million tons of iron ore; while Ashtabula, Cleveland, Conneaut, and Chicago unload an equal amount from more than seven thousand vessels that annually enter their harbors. The Detroit river floats four times as much tonnage as passes through the Suez canal, and one and a half times the aggregate of all vessels engaged in foreign trade that enter our ports on the Atlantic, the gulf, and the Pacific seaboard, an amount about equal to that of London, Liverpool, and New York combined.

We will classify all this western commerce. It will be observed, however, that for no other purpose may we wisely make class distinctions among our people, or sectional divisions of our country. Arbitrary though it be, I assume for the convenience of the hour, and for the hour only, that "the west" includes Michigan, Indiana, Missouri, Oklahoma, Indian territory, and all west of these and all north and west of Texas. Probably a majority of the people of the United States speak of Ohio as a western commonwealth, while those who live in states washed by the Mississippi river realize they must travel some miles toward the setting sun to reach the line that would bisect the great republic. The eleventh census credited these states with forty five per cent of the farm area, but gave them over seventy per cent of the cultivated land. The twelfth census shows a much larger proportion of tilled lands. These states produce more than two and one half billion bushels, more than seventy per cent of the nation's cereals, and seventy per cent of the nation's hay. They contain fifty per cent of the milch cows and sixty per cent of all other cattle, sixty five per cent of the swine, seventy five per cent of the sheep, and where, except in the west would you look for eighty per cent of the wool?

Permit a few observations, tending to show that an ever increasing proportion of the people within the territory I have described are giving well deserved attention to industries other than agriculture. Illinois, Wisconsin, and Iowa have increased their average annual cereal products less than nine per cent since 1890. During the preceding decade these same states made a fourfold larger increase, indicating very

clearly, I think, that the maximum capacity, under present methods of agriculture, has been nearly attained.

In 1889, forty per cent of the arable land of Iowa (the proportion actually cropped) produced one pound of cereals per day for every man, woman, and child in the United States —in round numbers eleven million tons. This would be quite enough to sustain life, and more than the average ration enjoyed by the people of the world. If all the arable land of Iowa were put in crop, and that portion not needed to support the teams necessary for its cultivation placed on the market, the people of the United States could not consume it though restricted to a cereal diet. The only way the yield of this unequaled fifty six thousand square miles of land can be consumed by eighty million people is to have large quantities of it first manufactured into beef and pork and dairy butter. Our increasing population renders it improbable, however, that this remarkable showing can be long continued, even by Iowa, though she may increase to some extent her cereal production.

The west not only grows food products, but her people have become no mean competitors in their preparation. Minneapolis alone manufactures 16,000,000 barrels of flour per annum, a carload (60,000 pounds) every ten minutes, day and night, 365 days in the year. A branch factory in a prairie town of Iowa of less than 4,000 population produces 6,000,000 cans of condensed milk per annum, while the parent plant in Wisconsin makes more than double this amount, a portion of which helps to feed the standing armies of Europe. The Elgin Butter company consumes the cream from 70,000,000 pounds of milk, manufactures 3,000,000 pounds of butter (1,500 tons), and exports its products to China, Japan, Cuba, Mexico, South American countries, and to Alaska. A single unincorporated firm in southwest Iowa handles in a year a quarter million pounds (125 tons) of butter, and 3,000,000 pounds (more than 100 carloads) of poultry. Another firm in the same state marketed, in a single year, 1,500,000 dozen eggs, sending them to the Atlantic, the gulf, and the Pacific coasts, while a third firm ships dressed poultry, not by carload only, but by trainload.

The product of packing houses west of the Missouri river sells on the market for an amount in excess of the postal receipts of the United States, while a single institution, engaged in the preparation of animal products, whose parent plant is in Chicago, produced in one year more than 10,000 carloads, 900 tons per day, of manufactured products, in addition to its meats. The packing houses represented in Chicago yield a larger gross income than all the customs houses and internal revenue collectors of the United States, while the live animals sold on a square mile of ground within the limits of that city is only 15 per cent less than the gross earnings of all the railroads that enter it. Either of two packers within this territory pays more for live animals to the enrichment of the ranchman and the farmer than is paid in dividends and officers' salaries by all the railroads in the United States, operating more than 200,000 miles, transporting more than 500 million passengers, and moving a half billion tons of freight, and capitalized at five and a half billions.

California is known as a gold producing state, and she well deserves her most enviable reputation, for her mines have yielded in excess of $1,250,000,000, but her orchards and vineyards are now a close second. California produces annually 250 million pounds of cured fruits, and 7,000,000 cases of lemons and oranges. Her farms responded with 32,000,000 bushels of wheat, 25,000,000 pounds of butter, 5,000,000 pounds of cheese, and 11,000,000 pounds of hops. She manufactured 65,000,000 pounds of sugar, and sent through the Golden Gate more than 1,000,000 barrels of flour, and exported 15,000,000 dollars worth of other agricultural products, while her forests yielded 500,000,000 feet of lumber.

Washington has a fame world wide for her fisheries; and her forests cut 1,000,000,000 feet of lumber, and 3,000,000,000 shingles. The fisheries of Oregon yield $3,000,000, her mines $4,000,000, and her farms and orchards $50,000,000. Her manufactures, including lumber, are worth $60,000,000. California, Oregon, and Washington estimate more than 400,000,000,000 feet of lumber yet standing in their forests, 100,000,000,000 more than government experts estimate in all the

territory of the United States outside that portion which I here represent.

Michigan, Wisconsin, and Minnesota have more than a national reputation for their lumber interests, and this is well deserved, yet the mines of these three western states produce seventy five per cent of the nation's output of iron ore, more than all the German empire and about the same as Great Britain and France combined.

Colorado produces nearly forty per cent of our gold, and more than forty per cent of our silver. Not one per cent of the precious metal is found outside the limits of the territory west of the Missouri river. Montana has produced, during the last five years, more than forty per cent of our annual product of copper. The west, therefore, produces ninety nine per cent of the gold and the silver, and the copper; ninety per cent of the zinc, seventy five per cent of the iron, all the lead, all the nickel, and all the quicksilver, an aggregate of more than $250,000,000 worth of metallic minerals per annum, nearly eighty per cent of the nation's output.

While it is true that the production of grain in the states named has not increased as rapidly as their population, it is an encouraging fact that their manufactures, their commerce, and their banking facilities have increased more rapidly than in the nation at large. The United States increased her manufactured products seventy per cent between 1880 and 1890, but the states for which I speak increased theirs 112 per cent during the same period. This country now manufactures $13,000,000,000, an amount in excess of the output from all the factories and all the shops of Great Britain and Germany combined by more than 3,000 millions. This enormous showing records an increase of 40 per cent in the last decade, but the territory I have defined made an increase in the same period of 45 per cent.

A few illustrations of what has been done must suffice to show what can be done, and hence what will be done, even in the smaller cities and towns, in this yet undeveloped though wonderfully progressive west.

A prairie town in Illinois, with no coal, no iron, no water power, and with no means of communication save one rail-

road, in fact with no advantages save the business grasp and enterprise of a few and the skill and industry of many, produces boilers, iron and steel pipe, brass and plated fittings, which find a market in nearly every state in the Union, and are exported to all countries and to the islands of the sea. One firm with headquarters in Missouri, ships six thousand carloads of clay products per annum into more than fifteen states and territories and exports in large quantities to the republic of Mexico. A single factory in Iowa, in a city of less than 25,000, no coal, no iron, no water, but with much skill and more energy, ships its products to England, to Germany, to France, Russia, Austria, Africa, Canada, Mexico, South American countries, Cuba, Australia, and New Zealand. Its boilers are now running cotton mills in the Carolinas, cutting lumber in Tennessee, Alabama, and Mississippi, irrigating plantations in Louisiana and Texas, making flour in Minnesota, Kansas, Oklahoma, and the Dakotas, manufacturing furniture in Michigan, and crushing ore in the valleys of the mountains. A few miles away stands another factory whose output of shoes finds a market in more than a dozen states and territories, and sells for more than a million and a half. Unincorporated mills in the same state, under a single management, annually consume half a million pounds of wool, the product of which, in finest flannels and ladies' dress goods, is shipped in carload lots to the commercial centers on both oceans.

A single unincorporated mercantile establishment in Chicago, whose founder is still active in its management, does an annual business equaling the gross earnings of the New York Central railroad, with its more than 3,000 miles, with a train movement of 35,000,000 miles, carrying 30,000,000 passengers, and moving 35,000,000 tons of freight. Do you wonder that I claim Chicago as a western city, when such gigantic things can be done within its limits in the business lifetime of a single man?

The territory I represent imports, through customs districts located within its limits, merchandise valued at $85,000,000 and exports $120,000,000 worth. But who shall say how much is consumed within these limits, or what is received at

other ports, or how much it contributes to swell the enormous aggregate that goes hence from the Atlantic seaboard. The banks within the same territory hold a billion and a half deposits, and their clearings exceed $15,000,000,000. In 1892, for the first time in our history, individual deposits in national banks within the grain growing states exceeded the value of wheat and corn sold from the farm. Now, individual deposits in the same class of banks exceed by one hundred per cent the value of these cereals disposed of by the producers thereof. Manifestly the banks of the eastern metropolis hold more western money than they have on deposit in western banks, but it is equally true that the east has contributed generously to western industries and enterprises; another evidence that our country is too small, or people too few, and have too much in common to permit even imaginary lines to divide our commercial and industrial interests.

It is easy to predict great things. It would be, indeed, pleasant pastime to picture the states that now produce the iron, manufacturing the same; the states that cut the lumber, consuming it; and the states that grow the wool, having as they do the purest water for its cleaning, coal in abundance, and power in literal torrents, weaving the finest cloths, as well as flannels, for the clothing of a hundred million of our own people and for the comfort of many nations beyond. But I am not so much interested in the particular location where this work shall be done, as I am in the inauguration of such means and policies as shall open the way for yet increased American activities. The Pacific ocean is ours, and the gulf is ours. Let those join hands, not across, nor over, but through the isthmus, and the Atlantic shall be ours. Discover means for informing our people what distant portions of the world require, and it will be produced. With the same fostering that other nations afford, American ships will carry the product of our mines, and of our farms, our fields, our folds, and our factories, beneath all skies and into all ports, and America will become the workshop of the world, where he who seeks to sell his labor shall find abundant employment, and he who employs labor shall find abundant market, thereby contributing to the comfort and contentment of all.

COMMERCIAL DEVELOPMENT OF THE SOUTH.

BY CHARLES M. HARVEY.

[Charles M. Harvey, editor; born Boston, Mass., 1848; has done editorial work for New York, Chicago and St. Louis papers and since 1886 has been associate editor and chief political writer for the St. Louis Globe-Democrat. He is a frequent contributor to magazines and reviews, writing chiefly on political and sociological topics; author of History of the Republican Party, Handbook of American Politics, etc.]

When, on April 9, 1865, Lee's army surrendered and the confederacy collapsed, there were 33,000,000 people in the United States, as compared with 83,000,000 in 1905; there were thirty six states, counting the eleven in the confederacy, as against forty five now; and $20,000,000,000 of wealth, as compared with $110,000,000,000 to-day. Immigration fell off sharply in the first half of the war, and then began slowly to increase, and expand markedly after the war ended. Hundreds of thousands of lives were lost and billions of dollars of property was destroyed during the four years ending with Appomattox, including the $1,500,000,000 which represented the slaves of the United States, which were counted in the aggregate of the country's wealth in 1860 and previously. In every slave state, except Delaware, Maryland, and Missouri, none of which seceded, the value of property decreased in the decade ending with 1870. In all those states, and in many of the free states, the value of the property shrunk between 1860 and 1865. In the north and west expansion came quickly after war closed. Thus Appomattox becomes an important starting point in American progress.

It was in 1865 that the first real work of construction of the Union and Central Pacific railways began, which brought rail connection between the Atlantic and Pacific in 1869. Those roads were a direct result of the war. During the latter part of Polk's days, in 1848, a bill was first introduced in congress looking to the construction of a transcontinental railway. At that time there were only eight thousand miles of railroad track, counting main lines, in the United States. Prac-

tically there was not a mile of road west of the Mississippi. The transcontinental railway project was talked of much in Taylor's, Fillmore's, Pierce's, and Buchanan's days, but without tangible result. It was the war which brought the Union and Central Pacific railways, the former being the eastern and the latter the western link between the Missouri river and the Pacific. Military necessity—the fear that if direct and quick communication between the rest of the country and the Pacific slope were not soon obtained the latter region would be in danger of separation—was the impulse which secured legislation for the building of the road. Secession sentiment was strong on the Pacific coast in 1861. Breckinridge, the southern candidate, got 34,000 votes in California in 1860, as compared with 38,000 for Douglas, the nominee of the democracy's northern wing, and 39,000 for Lincoln. The strength of the Breckinridge vote in the golden state was a surprise to the north. In Oregon Breckinridge had 5,000 votes, as compared with 4,000 for Douglas, and 5,270 for Lincoln. It was only through a split in the democratic party that the republicans carried the two Pacific coast states in that critical canvass of 1860, and even then the republican margin was perilously narrow. The activity of the secession agents in California in 1861, and the fear that they might gain control of that region, put a bill for the construction of a transcontinental railway through congress in 1862, but the work of laying the rails did not actually begin until 1865.

The railroads built the west, which has grown up since Appomattox, and the Union and Central Pacific roads were hardly completed when the second of the transcontinental lines, the Northern Pacific, was started. That, too, was a product of the civil war. A charter for it was granted in 1864, but construction work did not fairly begin until 1870, a year after the meeting of the rails at Promontory Point, in Utah, on Oakes Ames' and Huntington's roads. Jay Cooke, the man who floated the bonds for the government during the rebellion, was at the head of the project, but he went down in the panic of 1873, and work on the road, suspended then for a few years, was taken up by Henry Villard, and pushed to completion in 1883. Those two lines, and the Southern Pacific, the Great

Northern and the other transcontinental roads, threw open the trans-Mississippi west to settlement, and incited a population expansion without parallel in the previous history of the country, or in the history of any other part of the world. During the civil war, for the first time since 1848, the railway construction in the country at large dropped below 1,000 miles a year. In the south railway construction practically ceased. The 35,000 miles of railway in the United States in 1865 expanded to 52,000 in 1870, virtually all the gain being in the north and west. The south's industrial expansion was to begin a little later. The 52,000 miles of 1870 increased to the 93,000 of 1880, to the 166,000 in 1890, 194,000 in 1900, and to 212,000 at the beginning of 1905. This increase in railway mileage is a fair index of the industrial and financial growth of the country in the forty years since Lee and Johnston surrendered.

The world quickly grasped the vast opportunities which the overthrow of the confederacy and the removal of the last cause for internal trouble would bring to the United States. More capital for industrial investment was sent to this country in the five years immediately after Appomattox than in any fifteen years before that time. The immigration, which had dropped to 89,000 in each of the two years of 1861 and 1862, went up to 247,000 in 1865, after the close of the war, and was 387,000 in 1870. It crossed the 400,000 mark for the first time in 1872, it went above the 600,000 line in 1881 and the 700,000 mark was left behind a year later. That represented the maximum annual inflow until it went up to 857,000 in 1903, dropping to 812,000 in 1904. The immigration tide, however, is subject to ebbs and flows, dependent on the industrial conditions in the United States and on the political and industrial conditions at home. The prosperity here and the depression abroad, coupled with the domestic troubles in Russia and Austria and the crushing burden of taxation in Italy, is sending the immigration now up to unprecedented figures. Very nearly three times as many immigrants have landed in the United States in the years since Appomattox as came here in the previous seventy six years, since the first inauguration of Washington as president.

At the end of the war there were thirty six states, three of which had been created since Lincoln's first election. These were Kansas, admitted in January, 1861, a few weeks before Buchanan stepped out of office; West Virginia, admitted about the middle of the war; and Nevada, created just in time to take part in the presidential canvass of 1864. The first state created after Appomattox was Nebraska, which was let in in 1867. Nebraska was the original name of the whole territory comprising the Kansas, Nebraska and other states of to-day. It was organized as a territory at the same time as Kansas, in 1854. The more southerly territory, however, increased faster in population, and was admitted just after the southern members of the senate had left congress to follow their states in secession. While Kansas had 106,000 population in 1860, the year of Lincoln's election, Nebraska had only 28,000. By 1870, however, Nebraska's inhabitants had increased to 122,000. The growth in the railway mileage of the north and west accounted for most of this expansion. Colorado, which had been trying to get in ever since 1861, when its population was only about 35,000, succeeded in 1876, and became the centennial state. Then thirteen years elapsed before any more additions were made to the number of stars on the flag, the longest time which had passed between successive state creations except when Missouri, let in in Monroe's time, left a gap of fifteen years before her nearest successor, Arkansas, came in in the latter part of Jackson's second term. But a large bunch of states came in together this time. The railways had been building up the country west of the Missouri. Villard's and other roads had been carrying people over into the shadow of the Rockies and beyond them quicker and cheaper than they had gone from the western border of Pennsylvania over into Ohio two thirds of a century earlier. The consequence was seen in 1889, when North Dakota, South Dakota, Montana, and Washington came in nearly together, and when Idaho and Wyoming were admitted a few months later. This completed the roll as it is to-day, except that Utah did not get in until 1896.

But in some respects the south was by far the largest gainer of all the sections through the collapse of the confed-

eracy. Population and wealth in the south had fallen off during the four years of war. Had a census been taken in 1865, it would probably have shown that in the eleven ex-confederate states there were fewer people than there had been in 1860. In the half a dozen years of reconstruction there was no chance for the south to make much real progress. The carpetbaggers piled up immense debts in most of the states of the confederacy. In nearly all of them, through the enfranchisement of the blacks and the disfranchisement of the confederates, the bottom stratum of society was put on top. When President Hayes' withdrawal of the troops from South Carolina and Louisiana in 1877 led to the overthrow of the last of the carpetbag state governments, reconstruction was completed and the work of undoing it began.

But while the south's political troubles were at their highest, the south's natural resources were beginning to attract the country's attention. West Virginia, Tennessee, Alabama and other states had coal and iron deposits which were unthought of before the war, and these have been utilized in an increasing degree in the past quarter of a century. The United States was far down on the list of coal producing countries twenty-five years ago. It passed England in 1900, which nation led the world until that time, and it now produces 37 per cent of all the world's coal. The south has made a large contribution to this gain. In 1880 the United States' pig iron product was 3,800,000 tons. It was 18,000,000 in 1903, and will be 21,000,000 in 1905. Here, too, the south has made an important contribution to the sum total of the country's expansion. The Birmingham (Ala.) district is a rival of the Pittsburg region, and has advantages over the latter in having the coal, iron ore and limestone nearer than in the Pittsburg field.

There have been complaints from the south recently about the low prices for cotton. These come from the immense crop of that staple which was produced in 1904. That year's yield was over 13,500,000 bales, which was 2,000,000 in excess of the largest crop ever raised previously. The cotton crop of 1860 was 4,800,000 bales, that of 1904 being almost three times as great. The cotton crop has much more than

doubled in size, measured by the 1904 figure, since 1880, when the south's real progress since the war began to be made. The United States produces three fourths of the world's cotton, all of the American crop being raised in the south. In that staple the south has something like a monopoly of one of the most useful and profitable commodities in commerce. Nor is the south's connection with cotton restricted to raising the raw material. The old slaves states have now caught up with the region about the Potomac and the Ohio in cotton manufacture. Of the average of 4,000,000 bales retained for home consumption now about 2,000,000 are manufactured in the southern mills. In 1880 the south manufactured only 221 bales of cotton. In this branch of industry, owing to the nearness of the raw material, to the low price of labor and to the low rents, the south is bound to far exceed the north. Its facilities for the production of the raw material, too, are practically exhaustless. The 13,500,000 bales of cotton in 1905 could be more than doubled if all the south's waste lands capable of cotton production were to be reclaimed and utilized.

The south has not yet regained its political prestige of the antebellum era. It furnishes no candidates for either end of national tickets. In no convention is its advice sought with the eagerness of the old days The south furnished all the country's presidents along to 1861 except the two Adamses, Van Buren, Harrison, Fillmore, Pierce, Buchanan and Lincoln, and Harrison and Lincoln were born in the south. For fifty one of the seventy two years of the nation's life preceding the civil war a man of southern birth and residence was at the head of the government. Many of the country's vice presidents in those days were also southern men. No southern man has filled either the first or the second office since the war, except Johnson, who, however, was chosen before the war ended. In two elections immediately after the war the south was not fully represented in the electoral college. Since that time, until recent days, the south has been giving the electoral vote to one party, and thus depriving it of a very powerful means for exacting favors from each of the parties in national conventions.

In this respect the south has not progressed far since Appomattox, but even here there are evidences that an advance is in sight. With its farms and plantations far more productive than in the past, its mines and factories busy, and its ports getting a larger and larger share of the country's commerce, the south can reasonably consider itself a favorite of fortune. Its wealth growing at a rate never before equaled, it is in a position to stand philosophically the ostracism which has barred it from the larger prizes of politics.

CORPORATE FACTORS IN AMERICAN PROGRESS —WALL STREET AND THE GRAIN PIT.

BY W. R. LAWSON.

[W. R. Lawson, a London journalist, came to the United States several years ago and in behalf of the London Daily News made an investigation of the industrial situation in this country; he had previously made similar investigations of Spain and Germany; Mr. Lawson's shrewd observations were quoted so widely that a demand arose for their publication in book form and the resulting volume "American Industrial Problems" is regarded in England as a standard book on its subject.]

If an English reader were asked what influence the stock exchange and the Baltic have on the general business of the country he might be hard put to it for an answer. If an American reader were asked a similar question as to the influence of Wall street and the produce exchange he would have no corresponding difficulty. Both these institutions stand in very close relationship to the staple markets of the United States. They are among the recognized price makers, and sometimes they are more effective than all the other price makers together. They furnish the speculative element which sometimes intensifies, sometimes neutralizes the natural tendency of a market. When, for instance, a short crop is anticipated, speculation discounts it beforehand. By buying in advance it puts up the price sooner than it might have risen if left to its own course. When there is promise of a heavy crop speculation discounts that by selling in advance. Both operations may be quite legitimate and have a beneficial effect. The rise and the fall may be equally moderated by the action of the speculator. They may be spread over longer periods, and in that way their ultimate danger may be lessened.

The trader generally does not recognize the speculator as a friend and ally. He more frequently treats him as a mischievous interloper. He regards the speculator as a creator of fresh risks rather than as a reinsurer of risks already

existing. But eliminate the speculator, and the grower of produce, the dealer, and the transporter will find that they have lost their means of reinsurance. They must now bear all their risks themselves. If a country like the United States, raising enormous quantities of agricultural, mining, and other produce which have far to travel to a market and many accidents to encounter by way, were to restrict itself severely to the ordinary course of trade, it would often be caught in disastrous fluctuations. In such circumstances the farmer would have to choose between selling his crop early—perhaps at the lowest price of the season—and holding it for a better price, which he perhaps might not get after all. No trader would buy it from him except at a price which would leave ample margin for future contingencies.

Thus the farmer, in deciding whether he shall hold or sell early, incurs the risk of a wrong decision; in other words, he speculates. The trader who takes part of the risk off the shoulders of the farmer also speculates. Between them and the professional speculator there is no essential difference. Is is only a question of degree in any case. If a distinction had to be drawn, it might be said that the farmer and the grain merchant only undertake risks incidental to their business while the professional speculator goes out of his way for them and undertakes them voluntarily. That may be, but the vital point is, that there must be a large amount of risk in the marketing of such produce, and that some one must bear it. The professional speculator may argue that better many should share it than that one should bear it alone.

Under the present commercial régime, wherever there are business risks to face there will be speculation as well as so-called legitimate trade. Moreover, the dividing line between the two will never be easy to draw anywhere, and most difficult of all in the United States, where risks are great in proportion to the enormous amounts that have to be handled. Speculation that simply spreads these heavy risks over a larger area requires little if any apology. On the contrary, it may be claimed that the better it is organized and controlled the more justifiable it will be. The Americans have, after long and thorough discussion, concluded that a certain

amount of speculation is inseparable from business of any kind in stocks or staple produce. Instead, therefore, of making a futile attempt as the German government did to suppress it, they allowed it to organize itself on the safest attainable lines. The Americans have consequently the greatest freedom of speculation and more abundant facilities for it than any other people. They have created the largest number of speculative methods and devices. "Futures," "options," "straddles," and every known kind of contingent dealing are familiar to them.

These facts are worth mentioning, not for their own sakes but in order to show that in the case of the Americans we are not dealing with a people who are squeamish or fastidious in speculative matters. An American speculator will be allowed both by law and public opinion to go farther—considerably farther—than would be tolerated anywhere else. Therefore whatever oversteps the American code of speculative ethics is likely to be rather rank. Here we shall judge the Americans by their own code, and not by that of any European community. Transactions that would be penal in Berlin form a large part of the day's work in New York or Chicago; and things that would scandalize London are mere passing sensations in Wall street.

These rather elastic principles of Wall street and the produce exchange have another noteworthy peculiarity—they are steadily growing more elastic. The question before us now is, what effect this laxity may be expected to have on the industrial future of the United States. It may be best answered, not by elaborate descriptions of Wall street and other centers of speculation, but by a few examples of the length to which speculative plunging is now carried. It would seem as if all the most dangerous precedents of the past were being revived for the purpose of out-Heroding them. In the phenomenal outburst of American prosperity there is much that foreigners can cordially admire. Threatening as it may be to their own interests, they can respect the splendid business abilities associated with it. But there are some phases of the boom which cannot be regarded either by Americans or foreigners without grave alarm.

The colossal gambles which follow each other so rapidly in Wall street and in the "grain pit" must shake confidence in the whole commercial system which permits them. Whether they be inseparable from it or not, they threaten serious disaster to it sooner or later. They are even more ominous than the trusts, for the latter may plead that union is strength, but colossal gambles can end only in panics. The gamblers themselves are perfectly aware of that, and it is amusing to see how jealously they watch each other when any alarm of a perilous "deal" is afloat. Formerly the greatest exploit that a Wall street filibuster could achieve was a "corner" of some kind. It was the crown of his ambition, like the role of Hamlet to a budding tragedian. But now the bare mention of a corner sends a cold shiver through Wall street. It begets terrible visions of a house of cards tumbling about one's ears. So terrifying is the prospect it conjures up that the banks, as soon as they hear of one being attempted, launch a vigorous remonstrance at the cornerers. This actually occurred not long ago—in fact, about the beginning of 1902. The episode was afterwards described by the actor in chief, John W. Gates. To an interviewer he made the following ingenuous confession:

"On the Louisville we had the opinions of the best experts and auditors in the country that it was worth more per share than the Illinois Central. Before we started we knew there were $25,000,000 quick cash assets in the treasury; but the public did not know that. We started knowing the actual intrinsic value of the company and its exact physical condition, and we had the reports of the auditors on its financial condition.

"When we obtained 306,000 shares—the amount we started out to get—there was a short interest of 150,000 shares, of which 100,000 shares were the foreign short interest and 50,000 were stock that August Belmont had sold under a resolution of the board authorizing its sale. These 50,000 shares were not good delivery for thirty days, and if we had called the stock and insisted upon the specific performance of the contracts, as we had every right to do, we could have caused a panic greater than the May panic.

"The proposition was made to me, by a thoroughly responsible man financially, that if I would call the stock and insist upon delivery he would sell 500,000 shares of the stock and give me half the profits for doing it. Morgan's people sent to my hotel and awakened me at 1:30 in the morning, and stated that at a meeting of bankers it had been determined that we were the owners of the Louisville, and wanted to know what we proposed to do, stating that it meant a panic probably greater than the May panic. I told them the proposition that had been made to me; but said that under no circumstances would we insist upon specific performance of the deliveries of Louisville."

In any other country than the United States Mr. Gates and his confederates would very probably have had to answer a charge of criminal conspiracy. But never a suspicion or a fear of that kind seems to have entered their minds. They laid their plans most deliberately and carried them out step by step—an expert examination of the Louisville company's books; cautious buying of over 300,000 shares, which must have taken some weeks; an arrangement to "call" the shares suddenly—in other words, to insist on immediate delivery at a critical moment; and, by way of grand finale, an agreement with another confederate to supply the frightened bears with as many shares as could be worked off on them during the bear panic. Apparently it was intended to sell half a million shares against the three hundred thousand held, so that the corner would have ended in the cornerers being themselves short of two hundred thousand shares.

Wall street would probably say that it was a Napoleonic scheme, and if it had succeeded the consequent panic would have been almost forgiven for the sake of the skill and daring of its authors. But the New York banks were not in a position to let Mr. Gates and his fireworks have their own way. They were thoroughly alarmed, and to add to their terror Mr. Pierpont Morgan, the deus ex machina of Wall street, was away in Europe. In great haste the Atlantic cables were set to work, and a message came back for Mr. Gates which he dare not defy. Without Mr. Pierpont Morgan and the Morgan banks Mr. John Gates would be a very small Napoleon

of finance. He read aright the Olympian message and climbed down, but not unconditionally. Mr. Morgan and the banks had to pledge themselves to protect the three hundred thousand shares which Mr. Gates would be left with if the bear squeeze did not come off.

The Gates-Louisville episode of 1902 is so far the high-water mark of Napoleonic stock gambling. We have presented it thus early in our sketch of Wall street for that reason. It represents in a striking and graphic way how far the stock gamblers of the period are prepared to go in the manipulation of markets—not stock markets alone, but grain, cotton, tobacco, iron, steel, coal, or any other staple with a "pull" in it, according to Wall street slang. Conversely it shows how much these markets have all the time to fear from the most daring and reckless manipulators. We may be asked how such things can be done in New York and not elsewhere. That is a question on which a great deal hangs. The possibility of such things being done in New York, not once or now and then, but almost any day in the week, seriously compromises the whole industrial system of the United States. Unfortunately the champion stock gamblers are also the industrial kings. This same Mr. Gates was a leading promoter of the United States Steel corporation. He has been an active lieutenant of Mr. Morgan in other big deals. He is understood to control quite a number of railroads. And his exploit in cornering July corn proved him to be also a man of some importance in the grain market.

The big deals which are now almost daily events in Wall street are not merely alarming in themselves—they are much more so for the character of the men engaged in them. These men are, sad to say, not ordinary gamblers. They are also financiers of genius and commanding ability. As financiers they are at the head of their profession, not in New York only but in the world. A group of them, not exceeding a score perhaps, hold all the principal banks in New York and Chicago in the hollow of their hands; they control all the chief railroad systems; they are nearly if not quite as omnipotent in politics as in finance. Only two checks on them can be said to exist. One is President Roosevelt and the other is the great labor

unions. Morganeers—trade unionists—and single handed president; that is how the triangular duel stands. It is a far more portentous struggle than that of McKinleyism and Bryanism, which shook the country to its center. It will be a more critical one for the millionaires. In the McKinley campaign they had the workingmen to a large extent on their side, but in the next struggle every trades union will be arrayed against them. Every labor war, great or small, now going on will leave its mark on the succeeding elections.

But what can be wrong with Wall street when a score of men, self made all of them, can in a few years raise themselves to such a pinnacle of wealth and power as to be able to do not only anything they please, but when and how they please? All ordinary laws and principles of finance have been swept away before them. They claim the right to convert stock into bonds and bonds into stock at their own convenience. They capitalize and recapitalize the creatures of their own creation as the whim seizes them. They split or splice securities, organize or disorganize them, bull or bear them, talk them up or talk them down "to suit their books," as the saying is. And these things they do not by hundreds or thousands but by millions.

In any case Wall street transactions would be large compared with those of any European stock market because it has so much more to deal in. But that only renders it the more surprising that a small group of men should have got control of markets so extensive that the very idea of manipulating them should seem prima facie absurd. The stock market, which from its huge size and the great variety of securities it deals in might have been thought safest from faking, has been captured hand and foot by a band of financial fakers. There must be something in Wall street itself or in the financial system it represents to have made such a paradox possible. This is the problem which of all others in the economic life of the United States most urgently demands solution. It cannot be pretended that such a state of affairs is safe or healthy for the commonwealth. It cannot be expected to continue long without provoking resistance and possible violence. Hence the duty that is laid on serious

minded Americans to find out how this gambling oligarchy has arisen, and how in the public interest it is to be checked.

The Wall street oligarchy has no counterpart in Europe. Stock dealing is active enough in all conscience in every European capital, but there is nothing Brobdingnagian about it. There may be firms which turn over a few thousand shares per day more than their neighbors, but the very largest turnover in London, Paris, or Berlin would look small in New York. European dealings are further distinguished by being mainly personal. There may be some large operators who work together or on the same speculative tack; there are foreign banks who act for large clienteles; and there may be casual combinations within the stock markets themselves. These exceptions do not, however, materially affect the rule that speculation in Europe is mainly personal. Another of its peculiarities is that it is greatly subdivided among different markets. In the London Stock exchange, for example, professional dealers are supposed to restrict themselves to one group of securities, be it consols, home railways, Americans, or Kafirs. The area of individual speculation is consequently limited. A man with $500,000 of stock open is a somebody, whereas in Wall street he would be nobody.

The great distinction between the old and the new worlds from a speculative point of view is that European stock markets have so-called "leaders." With them the crowd is everything, and it sways hither and thither under a multitude of ever changing impulses. There is no Keene or Harriman to take it in hand and work it up to reckless enthusiasm in favor of a particular stock. Neither is there a Mr. Gates lying low and buying hard till he gets unsuspecting sellers into a trap and shuts it down on them. It is very doubtful if either the Morgan or the Gates role could be played with any success in Europe. Past experience has made the British investor too skeptical about American booms suddenly sprung on him. Even if he were easier caught the machinery to catch him does not exist here to a twentieth part of the extent that it does in the United States. Neither is it worked with a twentieth part of the energy that American stockbrokers throw into it.

Not so many years ago speculation in stocks was confined to New York and two or three of the principal cities in the interior. Chicago was of course the headquarters of speculation in grain, but its stock exchange was of very little account. In the same way there was very little betting on races. The average American had enough to do attending to his own business, and he seldom went farther afield. But an enormous expansion of all kinds of gambling is now visible. The Western Union Telegraph company supplies stock quotations and racing news at a fixed rate per annum to all and sundry. Every hotel and beer saloon has its ticker. Every town of fifteen or twenty thousand inhabitants has a stock exchange or a board of trade. Every provincial broker who would be thought anything of has his special wires from Wall street and issues his daily bulletin to clients. From Boston to San Francisco nearly everybody talks more or less of stocks, options, bulges, and corners. The huge advances which all leading stocks have made since the reorganizations of 1895–96 have thrown a glamour over the whole country. People who never touched stocks before now regard them as a lottery in which big prizes are to be drawn. Again and again they try their luck, and they have just enough success to keep up their interest in the game.

There is thus a plentiful supply of inflammable material for the Wall street leaders to operate on. A hint has only to be dropped that the Morgan brokers have been large buyers of southerns, or that Mr. Keene speaks well of Union Pacific prospects, or that Mr. Gates has formed a bull pool in Atchison, and it will be flashed across the continent over every tape machine and into the columns of every newspaper. Then the bull fever breaks out again, and orders to buy are flashed back to Wall street from all over the country. From Montreal to El Paso, and from Philadelphia to Seattle, the grand army of punters answer to the signal. A leader can do almost anything with such a following. He can run up prices till he gets tired of raking in profits. He can unload shares by tens of thousands in sure and perfect hope that he will be able to get them back again when he wants them, and at his own price. He can lure them on with "privileges,"

new issues, combinations, rumors of increased dividends, and all the rainbow visions that fascinate the gambler. If now and then he takes out the peg which holds up their fool's paradise and lets them drop into the cellar, the worst he has to fear is that they may storm and swear a bit. But he knows they are very forgiving, and at the first offer of a new plum they will all swarm round him again.

The only British parallel to a Wall street leader is a popular company promoter. But he is a mere rocket in comparison. No sooner is he up skyhigh than down he comes like a stick with a crowd of furious dupes on top of him. The same rocket seldom goes up a second time, but a Wall street juggler can play the game over and over again ad libitum. Mr. Gates himself has been at it for at least ten years. Our company promoting rockets have other limitations which do not trouble their American prototypes. They have to be content with what they can work off on the public. Our banks and finance houses are, as a rule, closed to them or opened only sparingly. But the Wall street juggler has banks and trust companies galore at his service as well as the public pocket.

Herein is the greatest peril of the American situation. A private speculator may lose his money and be done with it, but when a bank or a trust company loses money it may be the beginning of far reaching trouble. After what has been said in defense of intelligent speculation within safe and moderate bounds, it will not be supposed that we are purists in this matter. But in the name of sound honest finance a protest has to be raised against financial institutions which have the interests of seventy eight millions of people to protect, mixing themselves up, however slightly, with Wall street plungers of the Gates type. The Gates corner in Louisville & Nashville stock could never have been thought of if two or three considerable banks had not undertaken to back it. Without them nothing Mr. Gates or his confederates could have done would have mattered much to any one but themselves. But when important banks will stoop to such operations it is impossible to say what they may not do. They forget entirely their proper duties and responsibilities when they

thus lend themselves to gigantic schemes of stock jobbing, which, if carried out as planned, might have wrecked Wall street and half of the New York banks at the same time.

American produce exchanges are more speculative than even Wall street, and they are no less necessary to the business of the country. It would be easy to mention a number of very important functions they have to perform, and on the other hand equally easy to draw up a long catalogue of abuses which may be charged against them. Briefly put, their raison d'etre, like that of the stock market, is to distribute the risks inseparable from modern industry and commerce. For example, when pioneer settlers are pushing into a new country they have to contend with many special difficulties and stand in need of special facilities from banks, railroads, and other local institutions. Few of them will have barns to store their crops in. As a rule they have to take them immediately they are harvested to the nearest railroad station. Here there is probably an elevator belonging to the railroad company and run on its behalf. The company, through its local grain agent, buys the wheat or corn and pays for it. Possibly it cannot be sent east at once, and in order to minimize the risk of holding it for weeks or months it is sold for future delivery. Formerly that was a very usual practice in the northwest, but it is no longer indispensable.

As a second example, there is the owner of a huge flour mill turning out several thousand barrels a day. In order to ensure a constant supply of wheat for his mill he must make heavy purchases in advance. If he were to enter at the opening of the season into unprotected contracts for all the wheat he expected to need, the risk would be tremendous for both buyer and seller. They have to face the danger of market movements so violent as to be ruinous. Both, therefore, welcome a means of hedging. The miller can at any board of trade or produce exchange in his neighborhood sell "futures." He can protect himself against a violent slump in wheat or corn by a prospective sale for September, October, December, January, or February delivery—any month in the grain year, in fact. The seller on his side can protect himself against

a hitch in the fulfillment of his contract by buying for October, December, January, or any other month.

A third example of the bona fide usefulness of "futures" is to be seen in dealing for foreign markets. The dealer may in course of his regular business have to enter into contracts for millions of bushels. To carry such a risk unprotected would be madness, especially when it can be insured, as it were, by post-dated sales or purchases. In short, the scope for legitimate dealing in future wheat or corn is unlimited. At the same time it opens up still wider scope for speculation. A large portion of the grain trading in Chicago and New York is speculative. Three fourths speculative to one fourth regular business might be about the proportion of the two. Again the speculative section of the market has many degrees. It may extend from punting for a few dollars up to a corner engineered by millionaires. But, large or small, all have this feature in common—they are little else than betting on the weather, with the help of a state aided weather bureau. Even the department of agriculture has to become an indirect accomplice of the grain speculators.

Both the department of agriculture and the weather bureau conduct for the public benefit a highly organized statistical service which, without their intending it or being able to prevent it, tends to foster this kind of gambling. It is not their fault that the gambler can make as good or even better use of their information than the legitimate trader. Anyhow, the result is that an immense volume of business, speculative and otherwise, is based on the weather and crop reports issued periodically by the government. The influence of these reports extends even beyond the grain trade, and has at times a powerful effect on the stock markets. From the moment that the seed goes into the ground the growing crops become a subject of lively interest on every stock and produce exchange in the United States. Day by day their prospects are discounted as an item in the current year's business, the traffics of the railroads, and the general economic situation. As they approach the critical stage the probable yield of the various crops is appraised by a host of expert statisticians, and every slight fluctuation in their condition

begets a sympathetic movement in grain and stocks. In effect they are revalued day by day, and grain and stock operators readjust their calculations to every change.

To the British phlegm that may seem a very gratuitous and unprofitable kind of worry, but the Americans love it. Discounting the harvest several months in advance is one of their most favorite methods of quick money making. Between them the government statisticians and the "grain pit" have reduced it to a science. The crops are valued on a system of percentages which looks very exact, but is capable of great discrepancies. On the wheat crop of 1901 the department of agriculture and the census department differed about a hundred million bushels on wheat alone. The standard represented in the official tables by 100 is obtained by averaging the actual harvests of the previous five years. In 1902 100 meant 16.9 bushels per acre of winter wheat, 17.7 bushels of spring wheat, 34.7 bushels of oats, 15.7 bushels of rye, and 31 bushels of corn. If on a given date "condition" was reported at 90, that implied a probable crop one tenth smaller than the average of the preceding five years. If "condition" were 80, that would be one fifth smaller than the average of the preceding five years, and so on.

The department of agriculture very prudently does not go beyond percentages, but these, as soon as published, are laid hold of by another set of statisticans who work out from them the estimated yields. Taking the average of each crop, they multiply it by the number of bushels per acre which the percentage of "condition" indicates. On this branch of the crop estimates the chief authority is Mr. J. C. Brown, the statistician of the New York produce exchange. He gives the finishing touch to them, and the "grain pit" has so much faith in him that immediately his figures appear operators proceed to trade on them. If they foreshadow a light crop—that is, in the slang of Wall street, a "bull point"—the bulls redouble their buying. If the forecast be for a heavy crop, the opposite effect happens, and the bears take their turn. Technically speaking, they "sell the market down." Thus the "grain pit" ebbs and flows until the last grain report of the season has appeared.

There are, of course, a good many other influences coming into play. Manipulation is in season all the year round. It is generally spasmodic and short lived, but seldom a year passes without an attempt at a grand corner. It almost invariably comes to grief, but next year is sure to produce a new candidate for the questionable distinction. The latest was Mr. John W. Gates of steel trust fame. During the summer of 1902 he had several big railroad deals pending, and, apparently to amuse himself while they were maturing, he tried a "squeeze" in corn. It may be worth describing, not merely as the latest novelty of its kind, but for various peculiar features it presented. Mr. Gates is an all-round plunger to whom nothing comes amiss, from poker to a corner in pork or corn. On this occasion he selected "July" corn as the subject of his experiment.

When he began buying is unknown, but it may have been early in the year, very probably soon after he unloaded his Louisville & Nashville stock on Mr. Pierpont Morgan. How much he bought is also a secret, but the general estimate in the "grain pit" was twenty million bushels. Mr. Gates and his associates could not possibly have taken up and paid for twenty million bushels of corn or anything like it. They calculated on the sellers not being able to deliver. But, like the youthful plunger Mr. Leiter, they had made one or two errors in their calculations. No doubt they were all right as to the 1901 crop having been five hundred million bushels short, and as to the consumption being much in excess of the current supply. They may have been right, too, in their belief that the visible stocks in Chicago and at other reporting points were unusually small. But the invisible stocks—namely, corn in the hands of farmers and elsewhere outside of reporting centers—seem to have proved too much for them.

It was a race against time to get the invisible stocks forward during July, and if the duel had been fought out to the bitter end the whole twenty million bushels could hardly have been forthcoming. Still the "shorts" did wonderfully well, considering. Early in the month they were bringing into Chicago 500 carloads a day, and by the middle of the month they had increased the number to a thousand a day. Very

soon Mr. Gates and his friends had had to pay for three million bushels of corn. But all the time they were putting on a bold front in the "grain pit" and successfully bluffing the bears. The price of the corn ran up from 60 to 90 cents per bushel, and predictions of dollar corn were being joyfully made in the pit. But farmers and other holders did not wait for the dollar. From 70 cents upwards they sent in every bushel they could muster, and Mr. Gates saw that if he was not to get his full twenty million bushels he would get an inconveniently large portion of it. So he called a halt and came to terms with the shorts.

How the two sets of plungers arranged their "draw" is of no public interest, still less which of them had the best of it. But it is of public importance that immediately the end of the corner was announced corn dropped back from 80 cents to about 65 cents a bushel. A rise of 25 cents per bushel, engineered in a few weeks, ended appropriately in a fall of 15 cents in as many hours. For the farmers who were sharp enough to sell on the rise the corner was a stroke of luck, but for traders who were frightened into buying on the rise by the alarm of an inpending corner it was the reverse. To the legitimate grain market it was a demoralizing evil, and for American finance it is an obvious misfortune that men like Mr. Gates, capable of imperilling a whole community for the sake of a few million dollars profit, should be recognized financial leaders. Twice within a year he brought the country to the brink of a panic—first by his Louisville rig and next by his corn corner. On both occasions he had to be called off at the last moment in order to avert a catastrophe, but he will often be heard of again at the same game.

The more respect one feels for institutions like the stock and produce exchanges of the United States in their legitimate sphere, the more he will regret the flagrant abuse that is frequently made of the facilities they offer for useful and even indispensable classes of business. The more liberal his views as to American methods of speculation in grain and stocks, the stronger will be his criticism of operations which go far beyond the widest limit of financial ethics. Markets liable to be upset by "squeezes" and corners of the Gates type are not in a fair way to be accepted as international models.

STRENGTH AND WEAKNESS OF AMERICAN FINANCE.

BY ELLIS H. ROBERTS.

[Ellis H. Roberts, treasurer of United States; born, Utica, N. Y., September 30, 1827; graduated from Yale, 1850; principal, Utica free academy, 1851–59; editor of the Utica Herald, 1851–80; member of New York legislature, 1866; member of congress, 1871–5; assistant treasurer of the United States, 1889–93; president, Franklin National bank, New York, 1893–7; treasurer of United States since 1897.]

The United States is not asking for new loans. The government is not increasing its debt by long bonds or by exchequer bills for temporary needs. If in any month outlay exceeds income, the deficit is covered by previous surplus laid away. Individuals and corporations reach out for vast sums in loans, but the nation is not a borrower in any market. Its interest bearing debt at the beginning of the fiscal year 1898 was $847,365,130, and the annual interest was $34,387,315. A loan of $200,000,000 was made by popular subscription for war purposes. Yet at the start of the fiscal year of 1904 that debt was only $895,157,440 and the annual interest $24,176,-745. In the interval the government has paid the cost of the Spanish war, $20,000,000 under the treaty of Paris, and $50,-000,000 on account of the Panama canal. Now the nation stands on a granite basis of credit, and over the door of the treasury may be inscribed: "We are not borrowing here."

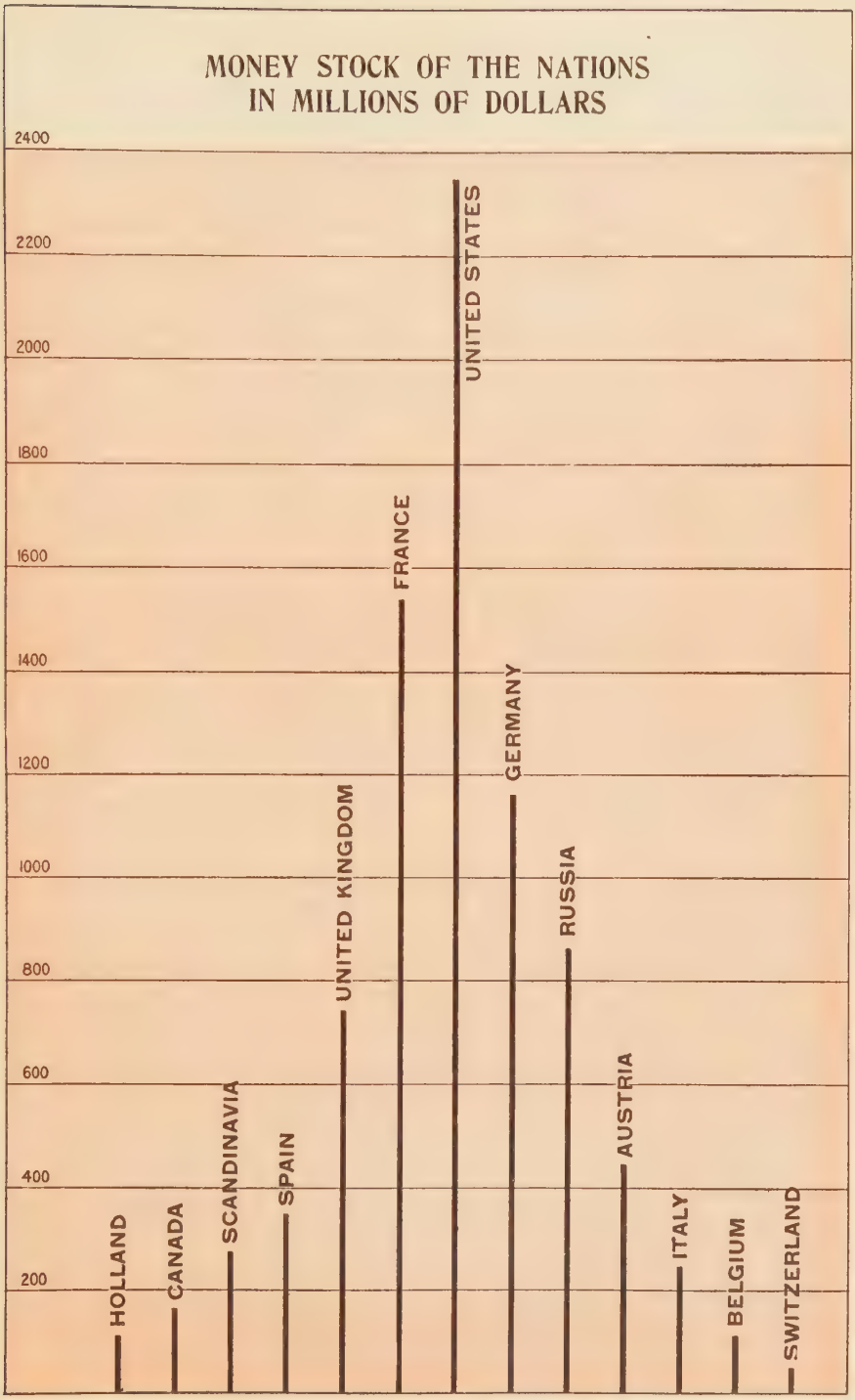
This fact reduces the financial problem to simple terms. The government leaves the loan market alone. Enough factors remain, however, to make it worth while to study the strength and the weakness of American finance. For a full discussion of our theme, we might perhaps be required to treat of the receipts and disbursements of the government. We may, however, in these partisan days leave this branch to the orators and the press of the political parties, who will be quite ready to thresh out the straw to the uttermost. In an ideal currency system, one would not expect to find besides subsidiary and minor coin, and the disappearing treasury notes,

six classes of money—gold coin, uncovered notes, certificates issued for gold, certificates issued for silver, bank notes and legal tender silver dollars. Or only four classes might be named, to wit: gold and its certificates, constituting 44.1 per cent; silver and its certificates, 21.2 per cent; uncovered notes 13.2 per cent; and bank notes, 17.2 per cent. The financial architect would seek to be rid of uncovered notes and legal tender dollars, and might look askance at the large bank circulation.

The United States notes, at first and still in theory a forced loan, began without reserve behind them. The resumption act which aimed to redeem them in gold, gave them a power for mischief as weapons for assault on the official treasure. Danger arose when the revenue was inadequate, and the treasury became impoverished. Peril ceased when a surplus was created, and the yellow metal flowed into the national coffers. In itself the United States note is weak; it gains strength as gold is put behind it. The practical banker may join with the theorist in the wish that it may pass gradually into the gold certificate. That change is going on without jar or friction on two paths; first, by the increase in the gold in the treasury, and second, by the use of notes of $10 instead of those of larger denomination. In five years the $10 notes have run up from just less than $100,000,000 on July 1, 1900, to $193,459,321 in 1902, to $245,440,011 on the same date in 1904. The treasury gross gold in the same period from $423,577,971 rose to $681,838,821, and is now over $700,000,000. Thus these greenbacks have turned from large notes in chief part to be 70.7 per cent in $10 bills, for which the demand always, with rare exceptions, exceeds the supply. In the same five years additions of 60.9 per cent to the gross gold in the official vaults have been made. The share of the uncovered notes to the total currency is steadily growing less. From 33.6 per cent in 1880, and 23.4 per cent in 1900, it has fallen to 13 per cent. The danger from them has diminished in certainly as marked a ratio. They are to decrease, while the general volume is to increase. Congress could without friction use at once $50,000,000 of the gold reserve for certificates of $10

and $5, as a substitute for United States notes for redemption, and in each succeeding year apply a like sum for the inflow to continue such change. The redemptions of United States notes last year were $122,680,000 and the average for five years $101,231,200. It would be easy to transform half of this sum into gold certificates. By this process the United States notes would grow less weak, and before very long become in fact gold certificates, as they are now in essence, in the ratio which the reserve holds to them, or 43.2 per cent.

The silver dollars have of late been severely assailed in and out of congress. They are denounced as excessive in volume and as a menace to the integrity of the currency. Demand has been loud for their redemption in gold, and for the reduction of their number by coinage into fractions. Predictions have been put forth that some official may, at his option, pay them for interest or some other high obligations. Assault on a fortress does not prove that it is vulnerable, but it does challenge vigilance and defence. While additions to the silver dollars were constant, their force for evil or for good grows apace. The repeal of the act for the purchase of silver set a barrier to the current and checked it. The recent stoppage of the coinage of dollars fixes a limit to their volume, and permits a calm survey of their use and their abuse. Silver dollars in circulation and not covered by certificates on July 1, 1900, were $65,889,346, and 3.2 per cent of the total currency. The volume increased for three years, but the ratio fell to 3 per cent of the total circulation. In the fiscal year 1904, including the coinage for treasury notes, the volume became $71,561,684, or 2.8 per cent of the total circulation. The silver dollars in the treasury reach the maximum from October to December annually, and the minimum in July or June. In 1900 the difference between summer and early winter was $8,203,467; in 1901 it was $10,422,985; in 1902 it was $6,651,358; in 1903 it was $9,794,-447; and in 1904 it was $10,011,539. This is a margin of practical elasticity in these metallic dollars, and marks the currents of their use in the varying seasons. This elasticity is in so far an offset to the weakness of such coinage.


MONEY STOCK OF THE NATIONS
IN MILLIONS OF DOLLARS
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
HOLLAND
CANADA
SCANDINAVIA
SPAIN
UNITED KINGDOM
FRANCE
UNITED STATES
GERMANY
RUSSIA
AUSTRIA
ITALY
BELGIUM
SWITZERLAND

The critic has a right to say that his objection rests not only against the seventy or eighty million dollars in circulation as such but also against the 460 or 470 millions covered by certificates. The demand for dollars and certificates makes sturdy answer. In the late autumn, the treasury finds the drain on these kinds of currency exhaustive. Its ten offices in September, 1900, held only $55,006 silver dollars, and $3,646,159 in silver certificates. Since then the minimum holdings have not fallen so low. Dollars were $1,405,631 in December, 1902, and $898,275 in September, 1903, while silver certificates in the autumn months of 1903 and 1904 were $4,271,562 and $6,192,783. These conditions are created by the movements of the crops, which call for dollars and small bills. The treasury prepares by husbanding such resources, and on August 22, 1904, before the autumn shipments began, had in its several vaults in United States notes, nearly all in $10 bills, $15,716,020; in silver dollars, $22,641,903; and in silver certificates, all in $1, $2, and $5 bills, $7,100,458. This was a total of over $45,000,000, available for putting on the market corn and wheat and other grains, provisions, cotton, and sugar. Great as this sum is, it illustrates the measure of elasticity possible with forethought and vigilance under our system. To that extent the weakness of rigidity is mitigated.

Bank notes on July 1, 1900, issued by 3,732 banks were $300,115,112 and 14.6 per cent of the total circulation, and became at the outset of this fiscal year $433,595,888, issued by 5,386 banks, and 17.2 per cent of each circulation. They have thus increased faster than the currency as a whole. Students of finance regard them with very different views. To very many our banking system seems the best in the world. By others bond security for circulation is denounced as unduly expensive, viciously rigid and unresponsive in trade necessities. The link of the monthly reduction to $3,000,000 is especially offensive to them. Not all such critics, but many, seek a substitute in currency based on general assets. Some thoughtful financiers look with alarm on the rapid and continuous increase in bank notes, and object to any device for adding to them. The suggestion

is urged for the gradual substitution of government certificates covered by gold and silver. Bankers are questioning the profit of putting out circulation, and some great institutions restrict their deposits of bonds for that purpose to the lowest amount permitted by law. While less than one sixth of the entire circulating medium, bank notes give rise to by far the greater share of discussion in the field of the currency. Is such currency a deformed and nervous sister in the family, requiring most of the expert care of the doctors? Or is it Cordelia among Lear's daughters, constant, faithful and true, dispensing comfort and blessing? Absolutely safe as they are, everywhere current for purchase and payment, these notes are the storm center of financial controversy.

Of late another weakness in our currency is vigorously exposed. The paper money is not clean. Banks are not willing to pay the charges for transportation to secure new bills; if they were, the face of the notes could be kept more nearly fresh as the bedewed flowers. No general agreement on such a policy is likely. Can congress be induced to spend half a million or a million a year for the increased redemption, the larger number of new bills, and the cost of shipment in and out? The answer can hardly be given here and now.

Instability is not a virtue in finance. In this country no topic is too sacred for discussion, and statesmen and professors, editors and orators have not had the field of the currency to themselves. Every one who can sharpen a pencil or own a typewriter or get an audience in a club or on a corner, can tell you where Hamilton was wrong, where congress has blundered, how useless is our nation's experience. The halls of legislation are open to every scheme. The theorists who assume infinite wisdom, and discern only ignorance and vile motives in opponents, are always busy. The cynics clothed in malice, who find nothing good in existing conditions, and the tuft hunters who prefer foreign methods to anything American, never fail of occupation. Many projects, many devices, many cooks, and if the broth is not always perfect, it serves fairly well and might be worse. At a recent session of congress, which was not very prolific, no less than twenty one bills aiming to change our currency were

introduced. If not one was passed, every project sought to unsettle in some way existing conditions. This threat of instability is one of the penalties of the great blessing of free speech and unstinted right of petition. The day must have its shadows a well as its sunshine. The confession that weak links can be found in our financial chain shall not drive us into pessimism. We know the growth and the reserve of strength. Under the act of March 14, 1900, every dollar is equal to every other dollar, and all are interchangeable. Because they are most in use among all the people everywhere, the small notes are in greatest demand. If conditions point at all to a premium, the ones, twos and fives will command it first. But the level is well maintained. Whatever winds blow or storms beat, our currency has a surface as clear and even as a mirror. That surface is not of mercury, shifting and undulating; it is formed of the minted gold.

The stronghold of our financial system is its actual gold, as well as our statutes. The world has about $5,500,000,000 of this metal, of which the United States has in its stock $1,342,422,740. In the last reported year, the world produced less than $300,000,000, of which our mines gave $80,000,000. Our treasury holds $700,000,000 in gross, and our banks, national and other, have $300,000,000, approximately. So over one fifth of all the world's gold is in the United States, and the bulk of it is in the banks and the treasury. The increase in gold in both forms in our currency in five years has been just less than $300,000,000 ($299,853,457), and in the past year from August 1st to August 1st, $137,727,920. The charge is put forth often in spirit, and sometimes in words, that we are extravagant and wasteful in the possession of so much of the precious metal. Are we? A leading financial journal of New York quotes the president of one of the largest banks in San Francisco as alleging that it costs $20 to get a dollar of gold out of the ground. Was the metal all that the picks of the miners and their self sacrifice took out of the earth? Did not the argonauts of 1849 and their successors create the California of to-day? The ranches, the orchards, the wheat and the fruit, the factories and shipyards, the cities, the churches, the universities, the civilization of that

prosperous commonwealth, are a part of the harvest planted by that $20 of the miners.

A writer in the Nineteenth Century alleges that in Australia the balance in gold mining has been adverse, and in the same review we read that on the whole gold discoveries have not been of use. For all fields response may be given on the same lines as for California. Is not California now, is not Australia, worth all they cost? But we are not studying whether gold prospecting or gold mining as an industry is profitable or the reverse. Loss may befall the miners in direct results, and yet by extending population, opening up new districts, creating new centers of production, they may add largely to the welfare of mankind.

Quite another question is whether the supply of yellow metal in this country and in the world is in excess. That problem is important and far reaching. We are to note that gold here is in the ratio of 44.9 to the total currency, while in Great Britain it is 70; in France, 62.12; in Germany, 66.10; in Russia, 87.71, and in Austria-Hungary, 68.90. In all these countries combined, gold is 69.6 to the total circulation. If the world's experience is to be accepted our gold is not in excess, although our whole volume of money may be too great. Gold, whether in coin or certificates, becomes elastic as currency just to the extent that it comes to the treasury and goes out from the vaults. This counterflow has no limit save the operations of trade. No payments or deposits in this form will be rejected, and the treasure will be held intact until the public use draws it out. Coin and certificates are interchangeable, and elasticity may assert itself to any degree. Our total circulation per capita at $31.06, exceeds that of every other nation save France, where it is $39.22. But our industry and enterprise and local traffic also lead in the comparison. The question is grave whether our currency is not in excess of our needs.

American finance connects itself with world movements. While we cannot follow the debate relative to the profit of gold mining, we must recognize the fact that among the great commercial nations the yellow metal is the only instrument for the final adjustment of trade differences. The experience

MONEY IN THE UNITED STATES BY DECADES
FROM 1800-1906
MILLIONS
2550
2450
2350
2250
2150
2050
1950
1850
1750
1650
1550
1450
1350
1250
1150
1050
950
850
750
650
550
450
350
250
150
50
1800
1810
1820
1830
1840
1850
1860
1870
1880
1890
1900
1906

of mankind has chosen it for that purpose, and there is no other instrument available. A few countries still cling to silver, but they all show signs of adopting the richer metal. Thus gold becomes more masterful. Those who put themselves in hostile array, denounce it as costly and doubt the value of discovery and production, are bound to provide, at least, in theory, some other tool for settling the world's commerce. The era of rude barter has passed away. The stress of trade insists upon the best machinery. In the years, 1889 to 1904, we exported in gold $890,231,329, and imported $845,452,765. From 1890 to 1896, inclusive, every year showed an excess of exports to an aggregate of $273,961,117. In only two years since then, 1900 and 1903, were the exports greater than the imports, $5,802,143 in all, while in the other years of the period the imports were $234,984,696 in excess. In the fiscal year of 1904, in spite of exceptional foreign payments, the imports surpassed the exports by $17,595,382. So the exports for the whole period were the greater by $44,778,564, and this is only equal to our own production of the metal for seven months. More significant still it is only 5 per cent of the outward movement for the period.

Yet the full sums of imports and exports were carried across the ocean, at great risk, heavy cost for freight, and not a little loss by abrasion. Why should this treasure be carted back and forth between nations, as the banks of this and other cities used to deliver money to each other? Is it not possible to frame a system by which only the differences may be paid in metal at proper intervals? Surely it would be cheaper to pay the balance than the gross sums, as the clearing houses daily testify. Why cannot an international clearing house be organized? Perhaps jealousy will forbid the selection of a single city for the purpose, as the Greek cities were rivals for the deposit of the offerings to Apollo. The international organization may well have its vaults in London, Paris and Berlin, as well as in New York, and the treasure can be divided in the ratio of the gold of the several countries. The certificates of the four vaults can be interchangeable.

American finance does not stand alone, a Teneriffe in midocean, a Shasta or Ranier or Mont Blanc rising in solitary

majesty among their ranges. It is the vital current of the activity of the people. Its strength is not in theory or in petty technicalities. It is strong with the brain and brawn of 82,000,000 citizens; with the varied resources of mine and soil and forest and running waters; with the sheep and horses on many ranches and the cattle on a thousand hills; with coal and iron and all their products; with wheat and corn and sugar and cotton; with the inventive minds and skillful fingers of efficient artisans; with forge and factory and dynamo and motor, and not least, with school and college, with university and church. Financial strength is in wealth of every kind, but not less in the purest morality and the worthiest character.

EARLY AMERICAN FINANCIERS.

BY GEORGE ALFRED TOWNSEND.

[George Alfred Townsend ("Gath"), journalist and author; born Georgetown, Del., January 30, 1841; graduated from Philadelphia High School, 1860; became a journalist in 1860 with the Philadelphia Inquirer, and later with the Philadelphia Press and New York Herald; war correspondent New York World, 1864–5, where he made a reputation as a descriptive writer; described Austro-Prussian war for the World, 1868. Author, Life of Garibaldi, Real Life of Abraham Lincoln, The New World Compared with the Old, etc.]

Poets are not of much interest in our day because poverty, tranquillity, dignity, humility, the cardinal virtues of many centuries, have lost their charm. To do anything purposeful now one must collect wealth first.

In doing so, the purpose generally loses its soulfulness. The wife of our bosom says: "O, don't be notional! You can't make the age." We harden by our material fiction. As Bill Travers said, when trying to light his gas with his wife's comb, which he thought was matches: "Tooth is stronger than friction."

Some men, like Dr. Schliemann, succeed at money, and go and dig Agamemnon up. Others, like the sturdy president of the Chicago university, make letters a character by saying to their rich patrons, "Give me $2,000,000 to start with, or I'll stay a poor tutor."

Indeed, wealth exercised to great ends is poetry. The transmuting power to give Cinderella a glass slipper, Aladdin a magic lamp or the Christian his heaven, are imagination with a financial requital.

Science has changed the theme of poetry from barbaric, causeless riches and display to enlightened power and systematic utility.

Hence the bank is the muse, the banker is the good fairy, the God of the living world is the financial essence and trinity which hears the popular prayers and answers them in showers of treasure.

We pray for a railroad, not to the same old moral overlooker. We pray for waterworks to the banker god. We ask

not upon our knees, but with our most wistful and worshiping intelligence that the concrete wisdom of the lords of exchequers will rescue us from panic, and our words are still the same: "Lord, help thou mine unbelief."

It was this feeling of pious homage Daniel Webster paid to Alexander Hamilton in the metaphor of God appearing to Moses, of Jesus raising Lazarus.

"He smote the rock of the national resources and abundant streams of revenue gushed forth. He touched the dead corpse of the public credit and it sprang upon its feet. The fabled birth of Minerva from the brain of Jove was hardly more sudden or more perfect than the financial system of the United States as it burst forth from the conceptions of Alexander Hamilton."

Having applied the religious figures of both the Jewish and Christian scriptures to his hero, Webster added from the mythology of the ancients another religious tribute. The country heart of Webster, his luxurious blood, his waste of revenue, his literary incapacity to do more than earn fees and salaries, had yet the justice and discernment to see that the founder of the American treasury was a universal providence.

So all those who continue Hamilton's task, the wise merchants who were Hamilton's consulters and their continuers to the present day, the savers of money and the utilizers of savings, the upright and public hearted bankers, the youth who join their seniors in holding up the hands of men of fiscal supervision, are of the new elect and patriotism of the saints.

Before Hamilton existed business had its public opinion and general convictions. But the exact mathematics, the precise and long projections, the Scotch and the French combination in Hamilton, enabled him to do the work of John Law, his Franco-Scotch predecessor, upon the more certain resources of the United States.

Law, the founder of the bank of France, died about thirty years before Hamilton was born; he was of the gambling class of Cammack, Villard and Woerishoffer, but he had studied the bank of Amsterdam on the spot, while a very young man, and it was as old as Jamestown and Captain John Smith, and

nearly a hundred years older than the bank of England, which Law saw appear.

Bills of exchange dated from a previous bank of Barcelona, when the Jews were in disfavor and required to have their money in some liquid state. The Dutch gave the peninsular Jews an asylum, and hence fiscal science paused long at Amsterdam.

The Jewish race proved an exception to all the other migrations of Germans, Tartars, Phoenicians, etc., in that they carried financiers in their camp. The golden calf is still their passover mark. Their survival is not a miracle, but a scientific, a constitutional method, an insurance and commissariat. "Render unto Cæsar the things which are Cæsar's," was also spoken by a Jew.

At this day, when Rothschild and Belmont extend to us the certitude of our money and enable the times to revive, the traditions of some old transactions about Jerusalem are commonplace. From the Arab and Semitic sentimentality we get a foolish hostility to riches, and the church had to take among its saints the rich man who, by not giving his all to the poor, preserved the moralist a tomb.

A Dutchman, King William, reared among the semi-Jewish bankers of Holland, planted the bank of England at the suggestion of a merchant who offered through it to raise the king's war loans. The politicians in parliament attacked it. It charged the government 8 per cent, and £4,000 besides annually, but the people took the stock ten years after Penn founded Philadelphia.

The bank set Europe free from the French king and his persecutions and gave English liberty its career, of which we are a part, and the public debt of England is the private affair of the bank, not the business of impecunious political demagogues.

Why did America, with such a capable financier as Hamilton, grow up to dislike banks and bankers? The constant indebtedness of slaveholders and the debts of the free settlers to establish themselves on new land caused the two classes to unite against paying debts and taxes. The four presidents elected after Hamilton's retirement and death traduced his

merits and copied without understanding his finance. The fifth president, Jackson, attacked the bank of Biddle as a part of the spoils programme and in behalf of the right of politics to issue money. The states, according to the genius of their people, disciplined their several banking systems, some, like Mississippi, repudiating, others, like New York, setting the national government its banking example.

The populace was always behind the men of finance. The southern or slave states had often capable financiers like Langdon Chenes, William H. Crawford, James Guthrie and Hugh McCulloch. Here and there a banker of special aptitude like Alexander Mitchell issued the currency for an immense section, yet was called a sound democrat.

Salmon P. Chase lived under the shadow of the failure of the Ohio Life Insurance and Trust company, which went down in 1857, and brought on that general panic of which the civil war was the relief. A cause of it was excessive railroad building and the contraction of loans, the latter having reached in New York the figure of $122,000,000. The Ohio failure was for only $2,000,000, but it was a sign of the times. The whole capital had been embezzled. It was also plain that the bank presidents were incompetent even in New York City. Extravagant living, fraud in corporations, overbonding, a corrupt press, state legislatures bribed by railroads, and state wildcat banks, aided the eventuation. Chase was governor of Ohio at the panic and his state treasurer, Gibson, had been caught robbing the state of half a million dollars. Chase's majority ran down from 15,000 to 1,500 voters. Yet he stepped from this embarrassment to the head of our ruined finances and his chief monuments were the national banks.

A year after the legal tender or arbitrary treasury note bill passed the national bank act was passed, Feb. 25, in each case, 1862 and 1863. Chase as chief justice attempted to return to the democratic party and declared the legal tender act illegal, December, 1869. Field was one of the four other justices with him. Both were presidential candidates. Miller, Swayne and Davis, all or nearly all ditto.

The public paid no more attention to the decision than to the first abortive decision of the income tax case of 1895,

knowing that it would be set aside by a reconstituted court, as was done.

A biographer of Mr. Chase pretends that he was originally against the legal tender act, but Senator Morrill told me that Chase intimated that he would resign from the cabinet unless Morrill, Morton and others in congress ceased their opposition to the greenback measure.

Mr. Chase's merit as a financier was reviving a national currency.

The assaults previously efficacious against the one United States bank and its branches now fell upon a cordon of banks, each intrenched in its own locality.

These banks and bankers generally regarded Chase as having tried to chisel his name out of its only durable monument.

McCulloch, of Maine, an Indiana practical banker, for years at the head of the successive state bank systems there, was required by Chase for his currency details and not improbably for future political assistance. He obtained Chase's place in Johnson's cabinet, was resuscitated by President Arthur, and he set on foot the acts which John Sherman consummated to restore specie payments, or the equality of all our money, in 1879.

Boutwell and Windom were payers of the public debt and refunders; Manning and Fairchild grown-up clerks of the national bank system; Carlisle was a Saul of Tarsus suddenly become a financial Paul.

The financiers have been long lived.

McCulloch died at 87, the widow of Alexander Hamilton at 97, his survivor fifty years; Albert Gallatin died at 88; Alexander Dallas, who restored the United States bank, died earlier of the gout. Adam Smith lived to be 67, a sickly child and old bachelor. Richard Rush, promulgator of the great tariff as secretary of the treasury under President J. Q. Adams, lived to be 79. Finance, relieved from the personal pursuit of wealth, is a seasoning, wholesome profession. And even avarice requires virtues which pleasure throws away.

The Astors, the first Vanderbilt, Peabody, Girard, lived full lives. Men of providence for themselves get longevity,

and benevolence or providence for the many cannot but be blessed. The secretary of the confederate treasury, Memminger, was far above the men in Davis' cabinet in correct understanding, and that edifice, discarding the sound experience of nations, exhausted itself before it ceased to fight. The military ardor which made him the chief victim of the bankrupt Burr's gamester shot probably took from Hamilton the fifty years his wife survived him. Presidential ambition is equally incompatible with steady financial statesmanship. The art of evading responsibility is the financier's stultification. Gallatin, Crawford, R. J. Walker, Howell Cobb, Chase, John Sherman, are instances of men who weight themselves with treasure to win a jockey race.

The severest comment upon Aaron Burr's reputed talents is that he who would be president and an emperor could not make a living either by his talents or his probity. His second wife, a former mistress, turned him out of the house for appropriating her rents. He was the natural founder of Tammany hall. Alexander Hamilton, according to the diary of Gouverneur Morris, who wrote it there the day he eulogized Hamilton's ashes, was an illegitimate son, but his financial genius remade him family ties.

It is not necessary to remind you that the Rothschilds, who are now taking care of our currency, established their fortune upon the loan of the British subsidy for Hessian troops to subdue America; nor that half the foundation of the Barings, whose failure made our misery, was the fortune of Senator William Bingham, of Philadelphia, whose daughter married Baring. Her sister, who had been seduced by Count Tilly, a roue noble in Philadelphia, was lifted out of her humility by another Baring marrying her. European travel, foreign society, profusion and fast life extinguished this family here, and in the abbey church at Bath, England, I read the tablet over William Bingham, Robert Morris' successor, and the descendant of one of Paris' Quaker blacksmiths.

The life of Jacob Ridgway's heiress, Mme. Rush, of Philadelphia, was equally foreign and fast. Ridgway was the banker rival of Stephen Girard, and, like Bingham, used our consular service to increase his wealth. His daughter had

the flavor of Antwerp and Rubens, where her father was consul. She died in a Saratoga hotel in 1857. Her effects are to be seen in the library called for her and left by her bookworm husband, James Rush. They apparently burned out the fires of congeniality in foreign travel, and resolved to respect each other as a Quaker solemnity.

Stephen Girard removed from New York to Philadelphia the year before he married, in 1770, a servant girl. He divorced her, it is said, for infidelity, and it is also said that for a like cause James Lick ran away from Philadelphia and made a stake in Chile.

The female sex often points the moral of "Lucky in love, unlucky at cards."

Girard kept a cider grocery and sold claret to soldiers in the revolution, and after it was over went into the San Domingo trade. His wife went to the lunatic aslyum in 1790 for twenty five years. He was a one eyed man. His wife had a child seven months after she went to the asylum. Girard possibly reaped treasure in the San Domingo massacres. He named his ships after the French philosophers Voltaire, Rousseau, Helvetius, and Montesquieu, to whom the orphans probably owe Girard college. The unbeliever astonished Philadelphia in the yellow fever by taking personal custody of the chief hospital, but he may have been familiar with the fever in the West Indies. He equally contemned doctors and clergy, respected the cents and let the dollars respect themselves, wore out his old clothes but fed well, and like Hopkins, Peabody and other philanthropists, made transient love no expensive thing. He swore like a jack pirate. When he frequently gave to churches it was only to improve the city. To young Baring, the London banker, who rode five miles to cry: "Mr. Girard, the Voltaire has arrived safe," he cried, "my ships always come safe; I am busy with my hay." Girard's bank, established when he was 62, was the result of the scoundrelism of the politicians in congress, led by the vice-president, George Clinton, in wiping out the first United States bank. The politicians of our time would do well to go to the library of congress and get the little volume of Stephen Simpson. I am now consulting in my library

the biography of Girard published in 1832, near the time of his death. Believing, as a Jeffersonian democrat, that the United States bank charter would be renewed, he bought through the Barings, of the English selling stockholders, $500,000 of the stock.

Barings were then about to fail through their American investments, as they did almost fail through Argentine investments eighty years later. The Barings, already embarrassed, owed Girard $1,000,000 which they could not pay. He took this falling stock for the debt. The honest bank settled at an advance of 8½ per cent, making Girard's stock 3½ per cent premium. The charter being beaten by George Clinton's casting vote, Girard resolved to trust congresses no more, but established a private bank with his money. He originated that now common character, the private banker, in this country. He also pressed Alexander Dallas to have the United States bank renewed. He bought the old United States bank building in Third street, with the cashier's house, for $120,000, one third their cost. Girard was the real founder of the second bank of the United States, which built the marble temple now the custom house in Chestnut street. With the first bank, he received deposits of $5,000,000 specie from the expired bank, and his own $1,300,000. He founded civil service reform by keeping all the United States bank officers. He adopted for his shield and bank note vignette, the American eagle and a ship under full sail. A fair running account was considered entitled to accommodation; small notes were discounted the first; the chief losses were from preferring to lend to big depositors.

He took large subscriptions to the war loans of 1812–14. He was the Pierpont Morgan and August Belmont of the treasury in that crisis. He called in his own currency at the suspension of specie payment and paid out state bank notes not his own issue, bought for cash. So, by 1817, he stepped forward with his own resources to restore government specie payments. With this specie reserve he ransomed his ship, the Montesquieu, for $93,000 from the British captor, and she had $200,000 cargo. He sold it for $500,000—silks, nankeens, etc., now made in this country.

In 1814, the treasury was bankrupt and government offered 7 per cent and a large bonus for $5,000,000. Only $20,000 was proffered till Girard stepped forward and took the whole amount. The effect was electrical and cowards were clamorous to be let in on the ground floor. Girard let many of them in on his best terms. Bill Jones, acting secretary of the treasury, a rival sea captain, refused to let Girard's cashier have one eighth of 1 per cent for getting this loan. Girard never would lend money to a demagogue politician.

This humble but meteor man took the loans for the second United States bank at his counter, and waited till the last day before he took the remaining $3,100,000. Indeed, he brought the original bank of Hamilton to uphold the public finances till party folly would recharter another national bank. Bill Jones, aforesaid, and Sam Smith, of Baltimore, expected to govern the second bank. They rejected Girard's offer of a million of specie and the dissolution of his bank into that of the government if he could name the cashier. The bank would have burst long before Nicholas Biddle's time had not Girard had it investigated by congress. The cashier was then made John Kean, father-in-law of the late governor, Hamilton Fish, of Grant's cabinet. Specie payments resulted from the bank importing $7,000,000 of specie from Europe, precisely as we are doing now.

Girard was an antitype of Commodore Vanderbilt, both sailors. Girard was blind of one eye and partially deaf. The legislature of Pennsylvania pronounced private banks like his unlawful. Girard said that "the art of finance was as necessary to those who governed as industry was to those who produced the wealth of a country; soldiers and generals were of secondary importance, and could be created by money." The politicians in 1829 bankrupted Pennsylvania, and Girard advanced the naked treasury its clothing.

Two years later Girard checked the outflow of specie by knocking down exchange. He lived to subscribe to the earliest railroads, and died at 82 from being upset by a wagon and from erysipelas. Hardly had he died, the most complete individual Pennsylvania ever had, when his magnificent will

made the whole city his orphan. He died in the presence of the busts of Voltaire and Rousseau, was buried like a Quaker in a Catholic yard, without ritual, and the freemasons marched for him, their grand treasurer. No clergyman attended his funeral, but the wealth he accumulated was the national religion, and he remains our greatest financier.

THE CONCENTRATION OF BANKING INTERESTS IN THE UNITED STATES.

BY CHARLES J. BULLOCK.

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Ever since Andrew Jackson overthrew the Second Bank of the United States, the American banking system has consisted of a large number of small institutions possessing little desire or power of helpful coöperation. Large banks with numerous branches, such as exist in Canada and Scotland, have been unknown in the United States, save for a few transient enterprises of ante bellum days. A central institution, enjoying federal patronage and serving to unify banking interests, has been a political impossibility since Nicholas Biddle rashly ventured upon a trial of strength with the masterful statesman from Tennessee. National banks, state banks, private banks, trust companies, competing vigorously for public favor, have met tolerably well the needs of the country in fair weather; but in times of stress and storm these separate institutions have been unable to oppose a united front to the forces of financial disorder. Yet, upon the whole, this decentralization of banking interests has been generally approved as democratic in its tendencies and well adapted to the diverse needs of our vast territory.

At the head of the system stand the national banks, which possess the exclusive power to issue circulating notes. For twenty years following the Civil war this privilege remained sufficiently remunerative to gain for these institutions a decided predominance over the banks of deposit and discount incorporated by the several states; but since the early eighties causes which are well understood have reduced the profit derived from the issue of notes, and have decreased the attractiveness of a federal charter. In 1884 there were 2,550 nation-

al banks and but 1,022 state associations, while in 1902 there existed 5,397 state banks, and 4,601 national. In point of resource and banking power the national associations still retain their preeminence, having nearly three times the capital and over twice the deposits shown by the state institutions; yet banks of the latter class are increasing more rapidly than those of the former, despite the temporary influence of recent changes in the national banking laws.

The state banks of deposit and discount have multiplied rapidly in the Mississippi valley, and especially in the south and west. In general, the laws under which they are formed are more liberal in their provisions concerning loans upon real estate, and permit the establishment of banks with smaller capitals than are required under the federal statutes. The last circumstance accounts for the rapid growth of state associations in communities where a capital of $25,000, the minimum fixed for national banks, is too large to be employed with the greatest profit. In some cases the state laws may verge perilously toward the point of laxity, but in general these banks are safely conducted and enjoy excellent credit in their own communities. In New England and the middle Atlantic states a decided preference is shown for national banks; but New York has nearly two hundred state associations, some of which, in New York city, make large advances to operators on the exchange.

Private bankers are very numerous in most parts of the United States, and are usually allowed to conduct their business without public supervision. In 1902 no less than 4,188 such individuals or firms paid the internal revenue tax then levied upon their capital and surplus. In most sections their resources are small, and their average capital in many states does not exceed ten or fifteen thousand dollars. In agricultural districts such agencies are useful in supplying credit facilities, but in recent years the state bank with small capital has secured an increasing share of such business. Our large cities, however, have many private bankers who are conducting enterprises of the largest size. Besides receiving deposits and making discounts, these firms frequently do a brokerage business or deal in foreign exchange. Many of them have

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gained their greatest reputation and profits from promoting, consolidating, or reorganizing large corporations. In New York city there are private bankers whose capital is counted by the millions, and whose names have become household words.

In recent years a new class of institutions has forced its way into the field of American banking. Trust companies have existed in the United States for three quarters of a century, but up to fifteen or twenty years ago their number was small and the scope of their operations was restricted. Originally they were formed to act as trustees of estates and to execute other trusts, while they often conducted a safe deposit business. With the growth of corporations, trust companies began to act as transfer agents, or as trustees under mortgage deeds, executed to secure corporation bonds. Such functions were of great financial importance, but did not carry the earlier companies into the territory occupied by banks of deposit and discount. Indeed, it not seldom happened that their charters or the general laws of the state prohibited them from receiving ordinary deposits or doing a discount business. Gradually, however, a change was effected in the law or in the practice of these associations, and trust companies began to engage in the work of commercial banks. To-day, besides receiving time deposits, they accept deposits that are subject to instant withdrawal by check; and they make extensive loans, generally upon collateral security. To their original business, therefore, they have added the ordinary banking functions; and these are exercised without the restrictions which the law imposes upon banking institutions. The result has been that trust companies have multiplied rapidly, especially in financial centers, and that their competition has been felt severely by the banks. In 1902 there were 727 of these institutions in the United States and their aggregate deposits exceeded $1,500,000,000.

At the present moment, therefore, there are no less than 14,913 associations in the United States that are engaged in commercial banking. In the ordinary discount and deposit business, the national banks still predominate, but their supremacy is challenged by the competition of other institutions.

State banks appeal to the needs of certain sections of the country; private bankers maintain an important position, especially in financing corporate enterprises; and trust companies have constantly increased the scope of their operations. But with all these developments, our banking system remains decentralized, and better adapted for fair weather than for foul. In times of actual panic the banks in the largest cities have sometimes utilized the clearing houses for the purpose of adopting common measures of defense. By the issue of clearing house certificates they are able to tide the weaker institutions over the period of greatest stress; but this is merely a temporary expedient, and does not change the essential feature of the system. Prior to 1898 it would have been difficult to discover any appreciable tendency toward the concentration of the banking interests of the United States.

In this respect, however, the situation has been radically altered during the last five years. In the first place, the organization of trusts in various branches of manufactures has brought to the great financial centers a large amount of business which formerly fell to the banks of the localities where the separate factories were situated. Many loans which independent manufacturers would have secured from local bankers are now negotiated in the larger cities where the combinations have established their headquarters. While the aggregate sums borrowed may not have been increased by this process, it is evident that corporation loans have been centralized to a very marked degree; and it is well known that New York has been the principal beneficiary of the change.

A similar tendency is disclosed by an examination of the movement of bank reserves. The national banking laws permit the country banks to deposit a certain proportion of their reserves with institutions located at various cities, and recent years have witnessed a rapid flow of such moneys toward New York. This is due, in part, to the drift of corporation business to that city; since country bankers have deposited there, at interest, some of the funds formerly loaned to concerns that have been absorbed by the trusts. Then, too, some of the metropolitan banks have been making very vigorous efforts to secure such deposits; so that eight of the principal institu-

tions hold no less than $160,000,000 of funds deposited by other national banks. The reserves of state banks and trust companies are handled in the same manner; and on September 15, 1902, the national banks of New York city had $414,000,000 of deposits that belonged to other institutions. This means, of course, that the bank reserves of the United States are concentrated more and more in a single city, just as, in France or England, the reserves are stored in a great central bank.

The marvelous development of American industry in recent years has increased very decidedly the demands made upon our banking system at the very time when such business has been drifting toward the city of New York. Between 1897 and 1902 the total bank clearings of the country increased from fifty four to one hundred and sixteen billions of dollars, while the proportion falling to the New York clearing house rose from fifty seven to sixty four per cent of the entire volume of these transactions. This has caused an unprecedented increase of the capital employed; so that within five years the banking institutions of New York have enlarged their capital, surplus, and undivided profits from $232,000,000 to $451,000,000. And if, to these figures, we add the increased deposits secured from outside banks, we can form some adequate estimate of the strength of the forces that have been concentrating our banking interests in a single city.

To no small extent this demand for additional capital has been met by the establishment of new institutions, particularly by the formation of trust companies; but in a much larger measure it has occasioned an increase of the resources of existing banks. Prior to 1898 the banks of New York had been of very moderate size. Only two had a capital of $5,000,000, and the average for the clearing house institutions was less than $1,000,000; to-day the average capital is nearly twice as great, while three banks have as much as $10,000,000 and one has $25,000,000. In 1895 the capital, surplus, and undivided profits of the fifty national banks amounted to $110,000,000, and their deposits stood at $507,000,000; in 1902 the number of these institutions had fallen to forty five, while their capital, surplus, and profits had risen to $191,000,000, and their

deposits to $1,057,000,000. It is evident, therefore, that the rapid expansion of the business conducted in New York city has stimulated the growth of larger institutions than the country has known since the days of the Second Bank of the United States which, it will be remembered, employed a capital of $35,000,000. It should be observed that our largest bank, the National City, with its capital of $25,000,000, is smaller than the great banks of other countries. The capital of the bank of England is $72,000,000; that of the bank of France amounts to $36,000,000; while the bank of the empire of Germany has a capital of $30,000,000.

The increased capital of the larger banks has been secured in many instances by subscriptions from the existing stockholders, but in other cases it has come from the consolidation of two or more institutions. The national banking laws do not authorize explicitly the combination of banking associations, yet one section relating to voluntary liquidation seems to contemplate such an occurrence. Mergers are some times effected through the purchase of the assets and the assumption of the liabilities of the institution that is to be absorbed. In other cases one bank increases its capital and sells the new shares to the stockholders of the liquidated association for the cash that they receive in payment for their original holdings. Occasionally both banks are placed in liquidation, and their assets are bought by a new institution which also assumes their liabilities. The comptroller of the currency recommends that the law should be amended in such a manner as to simplify the process of consolidation.

In New York city these bank mergers have attracted great attention, and the First National bank, the National City, the Bank of Commerce, the Hanover National, and many others have figured in such transactions. But in Boston, Philadelphia, Pittsburg, Baltimore, Cincinnati, Cleveland, Detroit, Chicago, St. Louis, and Omaha, the process has been repeated; so that reports of bank consolidations have become quite the order of the day. In 1901 twenty one national banks were absorbed by other national associations, while six were merged with state banks or trust companies; in 1902 there were forty six consolidations of the former class, and eleven

of the latter. Apparently we are now witnessing a movement which resembles, at least superficially, that which has proceeded so rapidly in the field of transportation and manufactures.

But actual consolidation is not the only method by which our banking capital is being aggregated in larger masses; for in many cases a common ownership has been established in institutions which retain a formal independence. The national banking laws prohibit one association from holding stock in another, but there is nothing to prevent a group of men from buying a controlling interest in any number of banks. This method is exemplified by the groups of institutions which Mr. Charles W. Morse has brought together in several cities. It has been followed also, by the capitalists who control the great National City bank, and by others. Sometimes a great deal of diplomacy is required to effect such an arrangement, since prosperous banks of long standing are jealous of their independence and their stock is held at very high prices. An illustration of this is seen in the relations of the First National bank of New York with the Chase National. In this case some degree of union was secured through an exchange of holdings and directors, so that the resources of the two banks are now under a joint control. In many cases it is supposed that the stockholders of one bank have purchased an interest in other institutions with money that has been borrowed by pledging as collateral security the shares thus acquired. Such a practice makes it possible to secure an extensive control with a small amount of capital, and may yet prove to be a source of danger. Obviously, if a number of banks that are involved in the same set of enterprises make numerous loans upon each other's shares, an impairment of capital might result from the failure of the undertakings in which such loans were used.

Finally, in addition to all the centralizing tendencies which have been described, every effort has been made to secure cooperation on the widest possible scale, through arrangements designed to unify the world of finance. The larger life insurance companies have become interested in various banks or trust companies; and their officers in a purely private capacity, are influential in many other institutions. Private banking houses are represented among the owners and managers

of national and state associations, while the good offices of influential capitalists have been enlisted as far as practicable. As a prominent banker has stated: "We now have skill and resources combined, with a strength never before seen in the United States and perhaps never in the markets of Europe." In the present day of unbounded prosperity, the structure erected upon the principle of community of interest presents an imposing, even awe inspiring, appearance; its solidity, however, will not be subjected to the decisive test until we reach a season of adversity.

It is difficult to trace with entire accuracy the complex relationships which now unite so many of the financial institutions of the city of New York. In broadest outlines, however, the situation can be described by saying that two major and two minor spheres of influence can be clearly recognized. A brief description of these will serve to give greater definiteness to our statement of existing conditions and tendencies.

Of the major spheres of influence the first is dominated, although not absolutely controlled at all points, by what are known as the Standard Oil interests. Ten or twelve years ago the magnates of the oil combination secured control of the National City bank which, within a decade, has increased its capital, surplus, and undivided profits from three to forty one millions; and its deposits, from twelve to one hundred and thirty millions. This corporation is believed to be connected more or less closely with some fifty other institutions located in various parts of the country. In New York it stands at the head of a chain of eleven or twelve banks and trust companies. Some of these, as the Second National bank, are wholly controlled by the interests which the City bank represents, and are operated virtually as branches of the larger institution; others, as the United States Trust company, possess greater independence, but work in harmony with the general policy of the group. The entire chain of institutions employs a capital and surplus of $92,000,000, holds deposits amounting to $377,000,000 and carries loans that aggregate $266,000,000. With the National City interests, also, there are identified some of the leading officials of the New York Life Insurance company and the banking house of Kuhn, Loeb & Company.

The same interests control, also, a second chain of institutions. This is headed by the Hanover National bank, and includes two smaller banks and the Trust company of America. The total capital of the four institutions is $16,000,000; their deposits amount to $97,000,000; and their loans stand at $57,000,000. With the Hanover bank, moreover, the Union Trust company, controlling $52,000,000 of deposits and $44,000,000 of loans, is known to have intimate relations. If now we combine the figures of the two chains of institutions associated with the City and the Hanover banks, it appears that within our first sphere of influence there have been aggregated $108,000,000 of banking capital, $474,000,000 of deposits, and $323,000,000 of loans. And these data, it should be remembered, take no account of the control exercised over banks located outside of New York.

The other major sphere of influence is controlled from the banking house of J. P. Morgan & Company and from the offices of the two large insurance companies. Perhaps little violence will be done to the facts if, henceforth, we call this the Morgan sphere; for it seems certain that the dominating influence emanates from 23 Wall Street. Three chains of banking institutions are the repositories of the power here represented. One of them is headed by the First National bank, which, within ten years has increased its total resources from thirty one to one hundred and ten millions, and now has a capital, surplus, and undivided profits amounting to over twenty three millions. In this institution Mr. Morgan's control is almost undisputed; and with it are associated the powerful Chase National bank, the Liberty and Astor banks, and the Manhattan Trust company. This group of institutions possesses an aggregate banking capital of $33,000,000 while its deposits and loans stand respectively at $149,000,000 and $72,000,000.

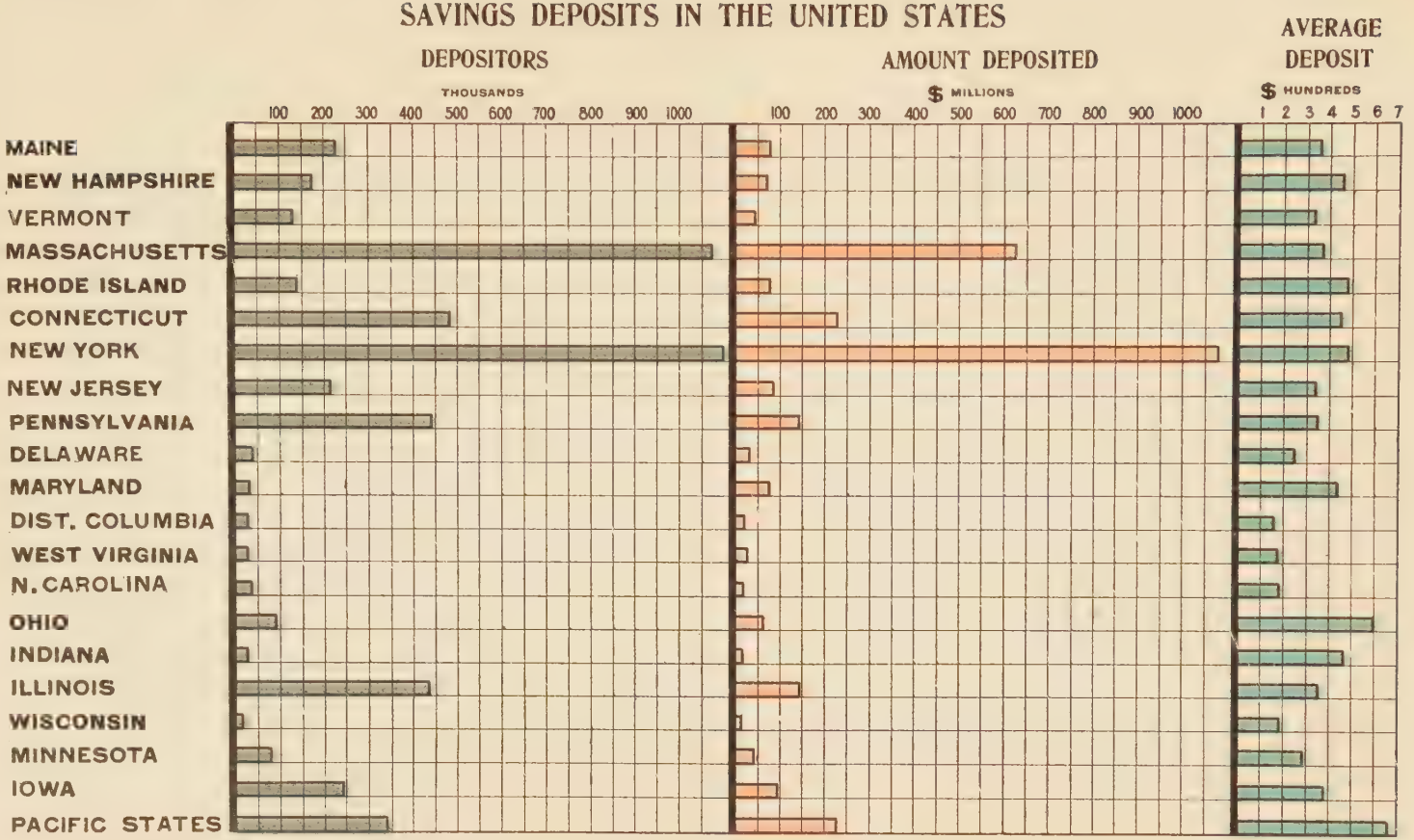
A second chain of banks is led by the National Bank of Commerce in which the Mutual Life Insurance company is one of the principal stockholders. With it are grouped four other institutions, of which the largest is the Morton Trust company. At the head of a third chain stands the Western National bank, which is associated with the Mercantile and the Equitable Trust companies. The Equitable Life Assurance

society holds large blocks of stock of the first two of these institutions, and the Gould interests are represented in the ownership and management of the Mercantile Trust company. If both of these chains are combined with the one controlled through the First National bank, we find in the Morgan sphere of influence a banking capital of $97,000,000, deposits amounting to $472,000,000, and loans which aggregate $299,000,000. In addition to this the two life insurance companies just mentioned have outstanding loans of $28,000,000 upon collateral security.

Compared with the Standard Oil and Morgan interests, the chain of institutions known as the Morse group is of decidedly minor importance. But this includes twelve banks and two trust companies, with an aggregate capital of $23,000,000 and loans amounting to over $100,000,000. Mr. Morse and his associates have purchased the control of these institutions, perhaps with the aid of loans secured in the manner described in an earlier paragraph. At present the group is supposed to be operated upon an independent basis, but there is no speculation concerning the possibility of its being merged with one of the larger banking combinations.

And, finally, we have come to the National Park bank, with its group of affiliated institutions. Four of these are small state banks in different parts of New York, which are operated virtually as branches of the larger corporation; the fifth is the Colonial Trust company. The banking capital of the six associations is $13,000,000 and their loans do not exceed $76,000,000; ownership and management rest with the Astor, Vanderbilt, and Belmont interests.

Outside of these various spheres are independent banks, some of which a decade ago occupied the leading positions. Then, too, many new institutions, generally employing a small capital, have been established during the recent period of business expansion. Yet the Morgan and the Standard Oil alliances control not less than $205,000,000 of the $451,000,000 of banking capital invested in the city of New York; and, in all probability, secure a similar proportion of the business transacted. Time alone can tell whether these mighty aggre-


SAVINGS DEPOSITS IN THE UNITED STATES
DEPOSITORS
THOUSANDS
100 200 300 400 500 600 700 800 900 1000
AMOUNT DEPOSITED
$ MILLIONS
100 200 300 400 500 600 700 800 900 1000
AVERAGE DEPOSIT
$ HUNDREDS
1 2 3 4 5 6 7
MAINE
NEW HAMPSHIRE
VERMONT
MASSACHUSETTS
RHODE ISLAND
CONNECTICUT
NEW YORK
NEW JERSEY
PENNSYLVANIA
DELAWARE
MARYLAND
DIST. COLUMBIA
WEST VIRGINIA
N. CAROLINA
OHIO
INDIANA
ILLINOIS
WISCONSIN
MINNESOTA
IOWA
PACIFIC STATES

gations can be held together; but for the present at any rate, a signal victory has been gained for the principle of community of interest.

The relations between the magnates who control the two great alliances have not always been harmonious, as was seen in the Northern Pacific corner of 1901; and at times there have been lively exchanges of blows and epithets. Considerable divergence of interest is likely to continue both within and without the purlieus of Wall Street; but it is interesting to observe that certain affiliations exist between the two groups of capitalists. One of the directors of the National City bank is a partner in the banking house of J. P. Morgan & Company, while another is a director of the First National. An examination of the directorates of banks and trust companies discloses a few other cases in which similar connections have been established; but there is no indication that closer union is desired.

In explanation of the present tendency toward the consolidation of banking power, emphasis is usually laid upon the undoubted fact that the growth of the gigantic industrial corporations has created a demand for accommodations which smaller banks would be unable to supply. Only a large institution, or a group of powerful banks and trust companies, can effect a $5,000,000 loan at an hour's notice, or undertake the vast enterprises that are characteristic of the times. Frequently such movements must be conducted with secrecy, at least in their early stages; and this condition is difficult to secure when the coöperation of a large number of bankers must be invited. Then, too, the national banking laws limit the size of a loan negotiated by a single borrower to one tenth of the capital of the bank. This restriction is so poorly enforced that its importance is rather sentimental than practical, but it has been one of the reasons for increasing the capital of some institutions.

Again, it seems certain that concentration results in considerable economies in operation, since the outlay for clerical assistance and for some other purposes does not increase as rapidly as does the volume of business transacted. A recent

investigation by the comptroller of the currency shows that, with banks having a capital of a million or more dollars, the operating expenses are but 1.33 per cent of the aggregate loans and discounts; while in the case of banks with a capital of $100,000, the proportion rises to 2.34 per cent. Moreover, it is possible for a large institution to employ at high salaries, men of special ability in each department of work. Within the limits in which these considerations apply, it would seem that concentration heightens the efficiency of our banking capital.

But the further claim is made that our larger banking institutions will contribute to the stability of financial conditions and it is said that a plan of harmonious coöperation has been developed which will materially diminish the injury produced by the next industrial crisis. In this direction, our independent banks, each compelled to seek its own safety in times of impending danger, have not possessed the strength which a unified banking system would exhibit. Of this fact we have had so many demonstrations that serious argument upon the subject is hardly necessary: but it does not follow forthwith that any and all movements towards consolidation will result in increased stability; much will depend, inevitably, upon the wisdom and conservatism which the great institutions display.

In this connection it must be observed that the largest banks in New York are for all practical purposes, corporation banks. Some of them frankly state that they do not care for small customers, by which is meant depositors whose accounts average from one to twenty thousand dollars; and all of them cultivate principally the business of the larger corporations and out of town banks. These features of their policy entail certain important results. It is a well known fact that deposits of a small or moderate size are more stable than millionaire accounts, which are likely to be drawn down very rapidly when money is high. Only a short time ago one of the big banks was notified, an hour before closing for the day, that a check for $5,000,000 had been drawn against a large account. With "a little skirmishing", so a reliable financial paper states, "the situation was met in a few minutes"; but the incident

illustrates the conditions under which the operations of such institutions must be conducted. The same tendencies exist also in the case of the deposits by country banks. At the approach of anything resembling a panic these are withdrawn with great rapidity; so that they have been justly called the explosive element of our banking system. It is evident, therefore, that more than ordinary conservatism will be required if the largest banks are to exercise a steadying influence in times of actual or impending danger.

This point can be made somewhat clearer by a brief reference to the conditions that prevail in other lands. In France or in England for example, the specie reserves of the whole country are concentrated very largely in the vaults of a central bank. The Bank of France and the Bank of England occupy an independent position, and are dominated by no outside interests that can involve them in the fortunes of special enterprises. Sobered and steadied at all times by an appreciation of the enormous moral responsibility that rests upon them, the managers of these institutions adhere to their ultra conservative policy even when the spirit of speculation is rampant in other financial circles. Against its enormous deposits the Bank of England maintains a cash reserve of over fifty per cent, while the position of the Bank of France is even stronger; when, therefore, other banks experience a demand for ready money, relief can be quickly afforded by these central institutions. And it is only through such conservatism as these banks display in periods of prosperity that they can contribute to stability in times of stress and storm. When it is remembered that the reserves of the New York banks seldom exceed very greatly the twenty five per cent limit which has been established by law and by custom, the contrast between American and French or English conditions becomes at once apparent. For an independent bank, which is free to seek its own safety at the approach of danger, a reserve of twenty five per cent should ordinarily prove to be ample; but for institutions that aspire to the rank of central banks such a safeguard must be wholly inadequate.

This leads us to another weighty consideration. Unlike the central banks of other countries, our largest institutions

are closely connected with various industrial interests, so that they do not occupy an independent position. Their policy is not controlled with sole regard for the general welfare of our banking system; but they have been drawn into vast enterprises, into promotions, or reorganizations, often of a speculative character, and have displayed less, not more, than ordinary conservatism. The National City bank stood sponsor for the Amalgamated Copper company, and the First National has lent its aid to the various undertakings with which Mr. Morgan has been identified. This is not to say, even by remotest implication, that the safety of the banks have been endangered by such transactions; but it is mentioned in order to illustrate the fact that these institutions are not free to husband their resources in order to insure the stability of the money market, and are not, at present, qualified to assume the roles of the Bank of England and the Bank of France. It is to be feared that our financiers have not yet learned the difference between banking and the promotion of companies; but until this distinction is better understood, New York city will not rival London as an international financial center.

One thing, however, may be conceded to the claim that the union of banking interests already effected may do something to mitigate the severity of future panics. A mere increase of capital will accomplish nothing in this direction, if banks in the day of prosperity, use their credit up to the hilt in their ordinary enterprises. But the common control of large groups of institutions may develop the habit and power of more effective coöperation. This will not, it is true, avert the inevitable consequences of over speculation; it will not prevent a certain depletion of bank reserves under the demands made by depositors whose affairs have become involved; but it may allay that senseless feeling of panic which is always responsible for some of the worst features of a crisis. In a situation where purely psychological forces play so large a part, even the expedients of the faith curist are not to be despised.

The concentration of banking power has now proceeded so far that discussion has inevitably arisen concerning the length to which it will be carried and the possible dangers of the movement. In the counting room and upon the street New

Yorkers are pondering upon these questions, and not infrequently printed remarks are made about the "money Trust." If this expression were heard only in the region of the hundredth meridian its interpretation would be obvious; but within the sacred precincts of Wall Street, such words cannot fail to produce a certain impression. At least they serve to suggest some concluding remarks.

It is sometimes said that the weekly statement of the condition of the New York banks is being manipulated for speculative purposes, and that it can be made favorable or unfavorable, according to the market position of the larger interests in finance. If, for example, it is desired to depress the prices of stocks, it is thought that large sums are withdrawn from the Clearing House banks, in order to reduce the surplus reserves which are commonly accepted as the index of the condition of the money market. This charge is, from the very nature of the case, extremely difficult to prove or disprove. Such transfers of money might certainly be made; but in the absence of positive proof, one cannot assert that they are of frequent occurrence.

Other disagreeable rumors concern discrimination in extending or withdrawing loans by which, it is said, certain concerns that have attempted to compete with some of the trusts have been forced to inevitable ruin. Here, again, decisive proofs are hard to obtain. The withdrawal of bank accommodations has always been a possible means of commercial reprisal, but it is usually conceivable that some other reason exists for the action of the banker. Doubtless the concentration of great power in few hands increases the dangers that may be apprehended from this practice; but up to the present time the evil is probably more potential than the actual.

The question of greatest interest, however, is: How far is the process of concentration to go? If two groups of magnates control to-day nearly one half of the banking capital of New York, what is to prevent them from establishing a practical monopoly of the business? There can be no doubt that money is now held much more tightly than formerly, and it is not strange that the situation has caused some apprehension.

In considering the matter it is possible to stay one's judg-

ment by recalling the fact that, of all forms of capital, banking capital is absolutely the freest. It is unnecessary for the banker to erect an expensive plant which will be rendered worthless if his competitors are able to drive him out of the business. Provided that care is excercised in making loans, it is possible for any concern to enter or to retire from the field without losing any appreciable portion of its investment. The trouble and expense of incorporating a banking association need not be incurred by any individual or firm that may desire to lend money upon personal or collateral security. No crude materials have to be transported through pipe lines or upon railroads that refuse equal opportunities to all shippers. The post office does not attempt to discriminate between its patrons, and express companies would hardly be so foolish as to hasten the establishment of a parcels post by adopting such a short sighted policy. Moreover, the average small customer, like the average large depositor or borrower, prefers to have personal relations with the banker; and this becomes increasingly difficult as the size of an institution increases. Under such circumstances, the establishment of anything resembling a complete monopoly is quite inconceivable. Even when a government grants special privileges to a central bank, as has been the case in Europe, a vigorous competition still persists. By the side of the Bank of England there has grown up a vast system of private and incorporated banks, and the Bank of France is confronted by such rivals as the Credit Lyonnaise.

But even if complete monopoly is impossible, it does not follow that the prospect is free from all unpleasant features. So large a part of the resources of the New York banks is now controlled by the great alliances that it would be difficult to finance a corporate enterprise of the largest size without the consent of the Morgan or Rockefeller interests. For such a purpose outside capital might possibly be enlisted, but this would probably entail considerable risk and effort; so that, for the present, a few magnates have the situation pretty well in hand. Then, again, it is unfortunate to have the largest banks and their affiliated institutions so closely identified with particular corporate interests. This gives to the great captains of industry almost unlimited control over other people's capi-

tal, and enables them to tie up in their own enterprises banking resources that should be available for the use of the community at large. Especially undesirable is it to have life insurance and trust companies drawn so largely into the domain of speculative finance. The general tendency of the times seems to be to confuse the distinction between enterprises that are safe and investments for funds in a fiduciary capacity and ventures that should be undertaken only with capital that is otherwise provided. Underwriting projects in which a profit of two hundred per cent is considered none too large a compensation for the risks assumed, do not furnish a good field for the conservative employment of trust funds. It is in these directions rather than in the menace of a monopoly that the present dangers of the concentration movement are to be found.

The systemization and, within conservative limits, the unification of our banking system offer large opportunities for legitimate enterprise, and contain the possibility of great advantages for the entire country. The analogies furnished by experience of other nations suggest, at any rate, that such developments are likely to occur during the next decade. The joint control of numerous banks will probably lead to what will amount virtually to the growth of branch banking, which has proved so successful wherever it has been tried. Monopoly will not be the result of such a process, if the example of other lands may serve as a guide for our conclusions; rather will it increase the effectiveness with which capital competes with capital in all parts of the United States. But the movement must be guided with great circumspection if political antagonism of the most violent character is not to be aroused; and it must not be directed with a view to the advantage of ulterior industrial interests. At the center of any stable system there must stand large banks of which the independence and the conservatism must be as unquestioned as the power. Without these qualities, mere bigness will be of no avail; and this is the fact that must receive chief emphasis in the consideration of present conditions and tendencies.

THE RISE AND BUSINESS OF THE MODERN TRUST COMPANY.

BY WILLIAM P. GEST.

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The economic conditions under which we live must be of interest to all: and particularly when the United States is confronted with a problem unsurpassed for magnitude and interest and for which history affords no precedent—it is the reconciliation of democracy with the modern industrial movement. This problem is year by year moving into a more acute stage, while, on account of the perplexity of its factors and the newness of their character, we search the past in vain for any method of solution. It is no wonder, therefore, that some of our wisest see no solution except retrogression, while many to whom retrogression seems impossible stand aghast to await time's own solution.

Now, our whole economic system in its present development depends on the free employment of individual capital, and of this system the trust company is the newest and most elaborate instrument. It is quite necessary, therefore, for one who wishes to understand the times in which we live to know something of these new and powerful agencies.

Those who decry present conditions under the name of capitalism, as well as those who endeavor to alleviate them, must remember that the development of our industrial system started and is built upon the free movement of capital, and in order to have a convincing knowledge of this it will be of advantage to revert for a moment to the origin of the industrial movement.

What it was that caused the sudden acceleration of industry in England in the last half of the eighteenth century is a question which has not, so far as I know, been analyzed in sufficient detail. That was one of the most singular and portent-

ous events in all history. Most of the important arts had already been discovered. Iron, steel and textile fabrics could be made; the possibilities of steam had been foreseen, but all these tremendous powers lay dormant only to dream in Utopian visions of the future. Suddenly all of these power sprang into action. Huxley states this problem in his customary clear and accurate style:

"The middle of the eighteenth century is illustrated by a host of great names in science—English, French, German and Italian—especially in the fields of chemistry, geology and biology; but this deepening and broadening of natural knowledge produced next to no immediate practical benefits. Even if, at this time, Francis Bacon could have returned to the scene of his greatness and of his littleness, he must have regarded the philosophic world which praised and disregarded his precepts with great disfavor. If ghosts are consistent, he would have said, 'These people are all wasting their time, just as Gilbert and Kepler and Galileo and my worthy physician Harvey did in my day. Where are the fruits of the restoration of science which I promised? This accumulation of bare knowledge is all very well, but cui bono? Not one of these people is doing what I told him specially to do, and seeking that secret of the cause of forms which will enable men to deal, at will, with matter, and superinduce new natures upon the old foundations'."

Huxley's explanation is that a little later the growth of knowledge beyond imaginable utilitarian ends began to produce some effect upon practical life. This explanation, however, fails to satisfy the economist. He looks for a positive cause, not merely a condition in which the cause may act. Huxley, indeed, has no positive message for the world in economics; his political doctrine being (consistently with his position as a naturalist) an indeterminate expediency. The historian and not the physiologist must discover the cause, and there must evidently be some positive cause. Knowledge is power, but power does not execute itself. Even after an invention is realized in a machine, it remains an experiment until economically excited.

No doubt the full answer to the problem is complicated. There might be found remotely a geographical cause in the

insularity of England; a political source in the freedom and moderation of her institutions; a moral source in the social virtues inculcated by the Methodist revival which preceded the industrial. But, however unsafe it may be to dogmatize on the subject, it is evident that a most direct economic reason was that then and not till then was there sufficient free capital distributed in private hands to make it practicable to bring the scattered forces of nature into contact. The period immediately preceding the industrial revolution was preparatory to it; and the first half of the eighteenth century is marked by the ascendancy of Whig principles, a vast increase of trade, a wide extension of banking and the growth of the monied class.

Iron can be made in a forge with charcoal at a trifling and ruinous rate, but it cannot be made in quantities without the cheap transportation of coal. It will be remembered that in England the making of iron with charcoal at one time threatened the existence of the forests, and various acts were passed in the sixteenth century to restrict it. It is evident that the improvement of the manufacture of iron was not dependent on the advance of knowledge, because the smelting of iron ore by mineral coal was invented as far back as the reign of James I, but various causes conspired to retard it until the art was buried in the oblivion of the civil wars. The industrial revival depended most directly upon the introduction of transportation systems. The first was the Duke of Bridgewater's canal, to which he devoted his private fortune, and which first brought coal to Manchester in 1760. This is the year from which we may date the modern movement. From this time it has swept on with increasing power and an ever accelerating rapidity, bearing the world on its crest we know not whither.

On the other hand, it is evident from the example of France that means of transportation will not alone explain the phenomenon, for the early canals of France preceded those of England by a century, and far surpassed them in magnitude; while her industrial development long waited for the lead of England.

It was not, therefore, any lack of technical knowledge which delayed the canal system of England. The marks of

Roman canals lay across her land, and France displayed to her a working proof of what skill could do. But the lack of capital only time could supply. So, in Scotland, a canal joining the Forth to the Clyde was proposed after the union, but was abandoned as chimerical until 1768.

In his Law of Civilization and Decay, Brooks Adams, indeed, finds the principal cause of the industrial revival in the importation of the treasure stolen from India; and while I think his disposition is to overemphasize the material side of history, yet it may be asserted with sufficient confidence that modern industry has been built up and still rests upon that free employment of large masses of capital which then for the first time began.

The early industrial development of America was similar, but was delayed for more than half a century longer, for want of capital. This difference between the two countries is, of itself, sufficient to show the true origin of the development. Every reader of American history will remember the scarcity of currency and coin which led even to the making of foreign coins legal tender, by an act which was not repealed until 1857. The old forges, for instance, of America, now blown out, have only the same sort of historic interest as those of Surrey, though they were operated to a later period. The development of Pennsylvania, the great iron field of the world, dates from the state systems of transportation inaugurated in the '30's, and that the great state of Pennsylvania went bankrupt in 1842, under a debt of only thirty millions, largely incurred for public works. This was not a permanent default. Sidney Smith sold his bonds too soon; Pennsylvania finally paid every dollar, with interest on interest. If the ecclesiastical humorist had possessed his bonds in the patience of hope, a classical piece of literature would have lost forty per cent of its humor, but its author would not have lost sixty per cent of his stock.

These prefatory words are truly germane to the subject, because it explains the origin and condition of the movement of which the trust company is the newest exponent; for the functions of a trust company are, in general terms, the conservation and employment of capital.

Lest this statement of the object of trust companies should

seem to be too general, I will pause for a moment to show that all of its operations come within these terms.

Money deposits; These are for the conservation of capital.

Loans are for the employment of capital.

Safe deposits are for the conservation of capital, such as gold, jewelry, bullion, or its evidences, such as stocks, bonds, etc.

Trusts: These are for the conservation of capital under certain special conditions. Trusts also involve investment, resolving themselves thus into a means for the employment of capital, because it is the duty of a trustee, like the holder of the talents, to lend out the funds and make them productive by investment. This may be either in certain restrictive forms of loan or in various kinds of securities. A trust fund is, therefore, free capital, though less free than bankers' funds. The other functions of a trust company, such as the registration of stocks, the transfer of stocks and loans, corporate trusteeships (as of mortgages, car trusts, etc.), the insurance of titles, the insurance of fidelity, and various other forms of activity, may all be classed as methods of insuring the conservation or regulating the transfer of capital.

It may be well here to distinguish between a trust company and a bank. These words cannot be defined exclusively of each other; they can only be distinguished by description. For some of their functions are alike, and trust companies differ among themselves in the class of business which they execute. In general, there are three kinds of banks—banks of deposit, banks of issue and banks of discount. National banks, at present, fulfill all of these functions. Now, receiving deposits of cash is common both to banks and trust companies, but the issue of notes and the discount of bills are distinct features of banking. They do not pertain to the preservation of capital, but to the creation of credit. They are entirely different functions and are not normally a part of a trust company's business. We may distinguish, therefore, banking from a trust company business by saying that while the trust companies deal in capital, banks create and deal in credits. Both the issue of notes and the discounting of bills belong to the credit busi-

ness, because they deal with promises to pay. If a bank discounts a note, it creates no capital; the transaction is represented by crediting the borrower in his account with the bank, but no money passes. The net result of the transaction is an increase of deposits and an increase of loans, without any increase of capital. These distinctions, however, are in part unreal and in part accidental. There are trust companies—at least, I know of one—which do not receive deposits, and some trust companies discount paper; but in general, trust companies are restricted from a general discount business and the national banking act (apart from particular restrictions in special charters and other state laws) effectually prevents the issue of notes by state institutions. Nevertheless, there is a certain similarity between both branches of business; as all these functions, whether of banks or trust companies, result either in lending or borrowing, so that both sorts of companies bring together the two classes of men into which all the world has been divided, namely, the men who borrow and the men who lend.

As generally happens, therefore, when definitions fail us, it becomes necessary to describe. A trust company is a corporation under state law with authority to transact business relating to deposits, loans or trusts, and such other business as its charter or general laws may allow. There being no general word to cover these various departments, the term trust company has been seized upon to cover a multitude of functions. Hence, it very often happens that the execution of trusts (properly so called) becomes a small part of the actual business of a trust company, and, indeed, may not be carried on at all.

This is the case with many of the trust companies in some states, some of which would more properly be called investment companies than trust companies. In most states many so called trust companies are simply large moneyed institutions whose principal business is receiving deposits and investing in large financial operations, such as underwriting or placing issues of securities.

When trust companies were first incorporated, there was an attempt to indicate by name the kind of business to be

transacted. Such were the names of the earlier companies in Pennsylvania—the Pennsylvania Company for Insurances on Lives and Granting Annuities; the Girard Life Insurance, Annuity and Trust company; the Provident Life and Trust company; the Fidelity Insurance, Trust and Safe Deposit company; the Philadelphia Trust, Safe Deposit and Insurance company—but that was in the days when men had more time, and the shortened form has now become more popular. This is partly because in a number of the titles mentioned the business described is just the kind of business the companies no longer do.

Compared with banks, trust companies are recent. There were, of course, always bankers, but banks, properly speaking, date in England from the seventeenth century. There were no banks in America in colonial times except those known as land banks. The first incorporated bank in the United States is generally stated to have been the Bank of North America, which was chartered by congress in 1781, and still continues to transact business in Philadelphia. Trust companies had no existence until the beginning of the nineteenth century. The oldest one in America is the Pennsylvania Company for Insurances on Lives and Granting Annuities, which was organized in 1809 and chartered in 1812. Other companies were chartered from time to time, until I believe there were in all, prior to 1860, some eight companies in the United States. These early companies were, however, generally chartered for the purpose of doing a life insurance and annuity business. Power to execute trusts was conferred afterwards from time to time by special charter or amendment.

The active growth of trust companies really dates from the Civil war, and is closely connected with the establishment of the safe deposit business. The war caused an unprecedented increase in government securities, which were held by vast numbers of investors. Just before the Civil war the debt of the United States was about $72,000,000. Immediately after the Civil war it was $2,757,689,571, and there were issued on account of the Civil war, from time to time, notes, certificates, and bonds aggregating over seven thousand millions.

Formerly, individuals kept their securities either them-

selves or left them free of cost in care of a bank. There were more than one objection to this—first, the right of a national bank to take such a deposit was considered doubtful, as appears from a notice issued by the comptroller of the currency; and secondly, the liability of a bailee without compensation is not the same as that of an insurer, and one or two cases arose where such depositors brought suits against national banks, the outcome of which was very unsatisfactory.

It so happened, also, that after the war there were a great many burglaries and bank robberies. It was, indeed, much more frequent then than now to read in the papers of banks being entered. I am disposed to attribute this, at least in part, to the wave of disorder which always tends to follow the dispersal of a great army, when many men, grown accustomed to the law of force, are scattered without resources through the community. Any reader of the papers of that time will find many advertisements for stolen and lost United States bonds. It is true, also, that banks were then not so well protected against burglaries as they are at present, at least in the east.

The charters of the new companies which were started at that time joined with the right of receiving such deposits the right to receive on deposit property of every kind, as well as to execute trusts, frequently following in this respect the rights which had been specially conferred on the earlier companies. The money deposit department of trust companies, which is usually the most profitable, was fostered by the allowance of interest, generally at two per cent, upon funds subject to check. This was a new departure. In the older days none of the banks allowed interest on money payable at sight, and therefore the money deposits of the trust companies quickly increased. This has been somewhat changed now, owing to the fact that many national banks allow interest (generally on large accounts), and the competition between banks for deposits has become extremely keen.

The next step in the enlargement of trust companies was the introduction of the real estate title insurance business. Prior to the introduction of this branch real estate titles had been passed by counsel upon the production by a conveyancer

of a brief of title, and all careful persons taking a conveyance or mortgage submitted the papers to counsel before settlement was made. The increase in the number of real estate transactions and the amount involved led to the formation of companies which undertook to insure the purchaser or mortgagee against all loss from defective titles. These were first allowed in Pennsylvania by the corporation act of April 29, 1874. These companies joined with this power to transact the different kinds of business theretofore conducted by the trust companies.

The history of trust companies in Philadelphia, which is typical, may be roughly divided into five periods.

First.—The early period of life insurance, which was gradually given up by the older companies when the newer style of business involving the payment to agents of large commissions was introduced.

Second.—The inception of the trust business, which may be dated from the amendment to the charter of the Pennsylvania Company for Insurances on Lives and Granting Annuities, in 1836, and the incorporation of the Girard Life Insurance, Annuity and Trust company, in the same year.

Third.—The introduction of the safe deposit business, in 1866, largely by the incorporation of the Fidelity Insurance, Trust and Safe Deposit company.

Fourth.—The introduction of the title business, which may be marked by the incorporation of the Real Estate Title Insurance company of Philadelphia (afterwards changed to the Real Estate Title Insurance and Trust company), in 1876.

Fifth.—The present period of increased activity in the financial branches of the trust companies. This period has been marked by the rapid increase in their number and resources, and may be connected with the large increase of gold and circulation since 1896.

It is interesting to observe how the more important steps have been taken at intervals of about thirty years—equivalent to a generation—the first bank, 1781; the first annuity company, 1809, 28 years; the first trust company properly so called, 1836, 27 years; the first deposit company, 1866, 30 years; the vast expansion of the trust company business, 1896, 30 years.

Since 1873 the growth of the trust companies has been very rapid. It is not possible to show this throughout the United States by authentic figures, because no official statistics are available except in the scattered reports of state officials, and many of those run back only for a comparatively short time. The United States census makes no enumeration of financial institutions, and the comptroller of the currency has no authority to compel statements from state corporations. No attempt, indeed, has been made to analyze the statements of all of the companies in the United States except by Mr. Edward T. Perrine, formerly treasurer of the United States Mortgage and Trust company of New York. Mr. Perrine found that in June, 1903, there were about 1,100 trust companies in the United States. The statements of 912 of these he analyzed and tabulated. Mr. Perrine has been good enough to lend me the results of his work on the subject, and to it I am indebted for some of my facts and figures.

At that date, June, 1903, trust companies amounted, approximately, to one fifth of the number of national banks, but ranked nearly one half in point of resources. That is, the aggregate resources of 912 trust companies were $2,910,063,340.11: aggregate resources of 4939 national banks were $6,286,935,106.16.

It agrees with what I have said about the business of trust companies to find that, on an analysis of these figures, the trust companies, in proportion to their assets, hold more securities than the banks, about equal loans, less cash, more real estate, more surplus, and larger individual deposits.

In view of trust companies having grown up under various state laws and different conditions, we may expect to find a great variation in their distribution:

New YorkCity	has	48
Philadelphia	"	42
Pittsburg	"	31
Boston	"	17
Chicago	"	14
Cleveland	"	12
Baltimore	"	11
St. Louis	"	10

You will observe that Pittsburg and Philadelphia have together some 73 companies, which leads one to suspect—what

is the case—that Pennsylvania is far ahead of the other states in the number of incorporations.

New York state has 78; Pennsylvania has 210. From Mr. Perrine's figures I have made up the following table of states:

Pennsylvania	210	Washington (State)	9
New York	78	Rhode Island	9
New Jersey	56	Louisiana	6
Indiana	47	Minnesota	6
Illinois	37	New Hampshire	6
Ohio	36	Mississippi	6
Massachusetts	35	Nebraska	6
Tennessee	30	Kansas	5
Missouri	23	Michigan	5
Iowa	22	Washington, D. C.	4
Maine	20	Wisconsin	4
West Virginia	19	Arizona	4
Vermont	19	Delaware	3
Texas	19	Montana	3
Virginia	18	Oregon	3
Kentucky	18	Florida	3
Georgia	16	South Dakota	3
California	16	Oklahoma	3
Maryland	16	Utah	2
Connecticut	15	Idaho	2
North Carolina	13	New Mexico	2
Arkansas	12	North Dakota	2
Indian Territory	10	Nevada	1
South Carolina	10		
Alabama	10	Total	912
Colorado	10		

The causes which have fostered the growth of these companies in Pennsylvania are unquestionably their early origin and the favorable statutes conferring so many different powers.

The figures bear no sort of proportion to the banking capital of the cities mentioned. New York, Philadelphia, Chicago, St. Louis and Jersey City all have more trust companies than national banks, and in Brooklyn, Cleveland, Newark, Jersey City and Providence trust companies' resources exceed those of the national banks.

The largest trust company in the United States is, I believe, the Illinois Trust and Savings bank, whose aggregate resources were, in June, 1904, $90,913,567.44. The largest in New York and I believe the next largest in the United States is the United States Trust company, whose aggregate resources on the same date were $73,036,781.57. It will help us to appreciate the tremendous growth shown by these figures to recall that the national debt after the Revolution was about

$72,000,000, which may be said to represent the money cost of independence.

The figures increase with great rapidity. In June, 1903, the aggregate resources of the trust companies of Philadelphia were $237,000,000, and on December 31, 1904, they were $283,000,000, being an increase of $46,000,000 in eighteen months in Philadelphia alone.

In such reports as I have alluded to, the corporate assets alone are included, and none of the figures given above cover amounts held in trust, as these do not enter, ordinarily, into the balance sheet. Indeed, no data on this point are at all accessible to me outside of Pennsylvania. The statements compiled by Mr. Perrine and published by the United States Trust company make no allusion to trust funds.

But since the establishment in Pennsylvania of the office of the commissioner of banking, in 1891, the reports of companies in this state include statements of trust funds. This, however, is not the case for the first few years, in which his reports have only incomplete data of trust funds. We are, however, able to make a fairly complete comparison in Pennsylvania between national banks and trust companies since 1892, and I have accordingly had tables prepared from the report of the banking commissioner and of the comptroller of the currency, which compare the growth of the trust companies and the national banks in Pennsylvania for the last twelve years.

From these tables it appears that in the twelve years ending November, 1903, the number of national banks in Pennsylvania has almost doubled, and that of the trust companies has quadrupled; the agrgregate resources of these banks has more than doubled, and the aggregate resources of the trust companies more than tripled. The deposits of the banks are two and one half times as great; those of the trust companies more than three times as great. The increase of trust funds cannot be accurately told for the same years, the reports thereof for 1892, 1893, 1894 being incomplete.

The flow of capital into trust companies is better shown by the increase of the aggregate capital, surplus and undivided profits, which have much more than tripled.

The large amount of trust funds held by the trust companies in Philadelphia is a unique feature of its business, and by far the greater part of such funds are held by some half dozen companies, as follows:

Pennsylvania Company for Insurances on Lives and Granting Annuities	$120,467,880 24
Fidelity Trust Company	87,257,645 18
Girard Trust Company	63,936,750 50
Provident Life and Trust Company	59,573,161 28
Philadelphia Trust and Safe Deposit Company	45,820,454 00
Real Estate Trust Company	25,688,328 16

or over four hundred millions in six companies.

The magnitude of the amounts held in trust by companies in Philadelphia may be illustrated by a comparison with those of the trust companies of the entire state of New York, which are reported as of January 1, 1905, at $275,665,112.

I believe, however, that all of the reports of trust funds are not made upon the same basis, some of the companies including securities pledged as collateral for corporate trusts—such as collateral trust bonds, etc. Most of the companies, however, I believe, including the six mentioned, now report only such funds as are held on active trusts. If all of the deposited collateral in corporate trusts was included, the amount would certainly be increased by much more than one hundred millions.

It is to be remembered, also, that a large amount of real estate is held by these companies which does not appear in the above figures. I think it would be a moderate estimate to allow real estate in addition, at, say, 15 per cent of the personal estate. It would be necessary to add, therefore, for all the trust companies in Pennsylvania, say, seventy five millions.

Some persons do not consider such statistics as I have endeavored to present as being of much practical importance, but I believe them not to be without their use if by them we can be led to a better understanding of the great current of business of which we all form a part.

GOVERNMENT CONTROL OF BANKS AND TRUST COMPANIES.

BY WILLIAM BARRET RIDGELY.

[William Barret Ridgely, comptroller of the currency, born in Springfield, Ill., July 19, 1858; graduate of Rennsalaer Polytechnic institute, 1879; engaged in mining, manufacturing and banking in Springfield until 1899, when he became secretary and vice president of the Republic Iron and Steel company; appointed comptroller of the currency of the United States Oct. 1, 1901; has written many articles on banking problems.] Copyright 1904 by American Academy of Political and Social Science

The passage of the National Bank Act, or National Currency Act as it was called, may be considered the beginning of the federal control of banks. This has now been exercised for more than forty years with most satisfactory results, both to the government, the banks and the people who have done business with them. It has resulted in an excellent system of banks, honestly, ably and well managed. The figures in regard to the number of failures and loss to depositors show an unequalled record of soundness and safety, and, contrasted with the previous records of state banks and even with the better and stronger state banks and trust companies which have existed alongside of the national banks, make a strong argument in favor of national control of institutions of this character. The total loss in over forty years is less than eight one hundredths of one per cent of the average amount on deposit. The volume of experience gained during the forty years' control of the national banks is probably the greatest accumulation of such experience which has ever been made, based, as it is, upon the control of a greater number of banks, more widely distributed, doing a larger volume and variety of business and covering a longer period than has ever been exercised in any other country. As a matter of fact, other countries do not attempt such a complete control or examination of banks as we do in the United States. The nearest approach to our national system is in some of our state bank departments. State banks, and especially the mutual savings banks in several states, are quite closely controlled in their management by specific statutes and are frequently and thoroughly examined. But there is no other system of banks over which there

has been for any such period such a thorough control through restrictive statutes, frequent examinations and report, as has been exerted over the national banks of the United States.

Probably the main consideration in the passage of the currency act establishing the system of national banks was to provide a market for the national loans made necessary by the war. The country, however, was glad of a chance to exchange the system of state banks under different laws in each commonwealth for a national system, which would at least be uniform, and which, above all, would substitute a system of national bank note currency for the many issues of state bank notes. As is well known, it was then expected that this bank note currency would replace all other forms of paper currency in circulation. It was probably on this account that the official who was to have charge of the relations of the federal government and the banks, was called comptroller of the currency, instead of comptroller or superintendent of national banks, which, as events have shown, would be a more distinctive title. The issue of legal tender, United States notes and other forms in circulation, and later the addition of a large volume of silver certificates to our paper circulation, have made such a change in the situation that, instead of furnishing all the paper currency, the national bank notes have formed but a comparatively small part of it.

It was mainly the granting of the privilege of note circulation which first attracted banks to the national system and made any national control of banks possible. The national banks were intended and expected to be primarily banks of issue, and were indirectly given a monopoly of this privilege by a prohibitive tax levied on the issues of all other banks. Outside of their note issues, the powers of the national banks were quite severely restricted. They were expected to be banks of deposit and discount and to transact, as far as possible, the local commercial business of their community. They were denied the power to have branches, to make loans on real estate or to own real estate other than their necessary banking houses, to loan more than ten per cent of their capital to any one person, firm or corporation, to own or deal in shares of stock, to own or make loans on their own shares of stock

as security. Each bank was originally required to keep a minimum reserve against deposits and notes issued, but this was later amended to require a reserve on deposits only.

When the act was first passed, there was much question whether the inducements offered the banks were sufficient to induce them to submit to examination, restriction and control by the United States. Many of the early banks were organized or converted from state to national as much or more from patriotic motives as from hopes of increased profits. The fact is, the circulation has never been very profitable; never sufficiently so to induce the banks to approach the maximum amount permissible. The highest percentage of possible circulation was issued in 1882 and was 81.6 per cent. This gradually declined to 27.54 per cent in 1892 and has since then steadily increased to 54.75 per cent in 1903. A strong inducement to the banks in the larger cities to secure national charters is the system of reserve and central reserve banks, which permits a national bank in other cities to keep two thirds of its cash reserve on deposit with an approved reserve agent national bank in a reserve or central reserve city; and a bank in a reserve city to keep one half its reserve in the central reserve cities, St. Louis, Chicago and New York. This gives national banks in reserve cities an opportunity to secure large deposits from country banks which the state banks cannot secure, because deposits with state banks are not counted as reserve, and are also subject to the ten per cent limit on indebtedness by any one firm or corporation. An additional inducement for banks to submit to federal control is the greater confidence in which the banks under national supervision and control are held by the people. This has steadily increased since the creation of the system as the result of the examinations and published reports, and that this is justified is shown by the comparative statement of the failures of national and state banks. From the date of the organization of the national system to January 22, 1904, there were organized 7,083 national banks. Of this number 404 became insolvent and 1,499 have gone into voluntary liquidation, leaving 5,180 in operation. The percentage of failed banks to the total organizations is 5.7

per cent; the percentage of liquidating banks is 21.2; the percentage of active banks is 73.1.

From an estimate based on 330 insolvent national banks whose affairs have been finally closed, dividends amounting to 71.31 per cent have been paid on claims proved, amounting to $101,724,840. Including in this estimate, however, offsets allowed, loans paid, etc., the creditors received on an average 78.55 per cent on their claims. This would make a loss of 21.45 per cent to the creditors. The total loss to depositors in forty one years on deposits, now amounting to almost three and one half billion dollars, has been less than thirty million dollars. The cost of liquidation, based on the total amount collected from assets and from assessment on shareholders was $8,579,822, or 8.3 per cent. The causes of failure have been classified as follows:

Excessive loans	22.81%
Fraudulent management and defalcation	36.34%
Injudicious banking	25.06%
General stringency and panic	15.79%

Comparing the result of failures and liquidations among the national banks with the figures in regard to the failures of state banks from 1863 to 1896, as given in the report of the comptroller of the currency for 1896, the last date to which complete figures are available, it will be seen that while only 6.5 per cent of the number of national banks in existence failed during this time, 17.6 per cent of the other banks in existence failed. And while the national banks which had failed up to 1896 paid to their creditors 75 per cent in dividends, the state and other banks paid only about 45 per cent. The cost of liquidation of state and other banks which failed is also very much higher than the cost of liquidation of national banks.

The present law authorizes the comptroller to order an examination of a bank at any time he may see fit. For several years after the establishment of the system but one examination was made each year. After a short time the banks in the reserve cities were examined twice in each year. During the administration of Mr. Eckels after the panic of 1893, this system was extended until each bank is now examined regu-

larly twice each year. The reports made by the examiners have grown from a short statement of liabilities and resources until they now cover all vital points of interest in regard to the condition and solvency of the bank examined. These reports when received from Washington, are gone over very carefully by a corps of trained men, and letters are written to the banks, calling attention to and criticising the various items in the reports and asking for an explanation or additional information in regard to them. This is probably the most important work of the bureau, especially in cases where a bank is in a critical condition. Probably the greatest utility which is done by the currency bureau is to be seen in those cases where it is discovered through the reports, that a bank has made such losses as to involve an impairment of capital or possible insolvency. In more cases than are generally known the comptroller of the currency, with the aid of the bank examiner, is able to save a bank which, without intervention and assistance, would have failed. Of course it is essential to success in this matter that secrecy be observed, and it rarely becomes known to any one outside of the bank and the comptroller's office what has been the condition of a bank or what steps are necessary to save it. It is the experience of the office that, where the officers of the bank are honest, truthful and make complete statements of their difficulties, in most cases additional security can be obtained for doubtful paper, or such a contribution made by the directors or other stockholders that the impairment of capital or insolvency can be entirely removed, and there are many banks in the United States to-day which have been saved in this way and are now not only thoroughly solvent, but highly prosperous institutions. This system of examinations, of course, is far from perfect. The examiner cannot, in the time at his disposal, make such an inspection as will always result in the detection of fraud and violations of law. If the officers of a bank, or any of them, are dishonest, being in the bank every day, they have every advantage over an examiner, and are very frequently able to deceive him. No system of examination can supply ability or insure honesty in bank management. This must be supplied by the officers and directors, and upon them the responsibility must

rest. In any well managed bank the work of the examiner ought to be supplemented and aided by continued and thorough examinations by the directors themselves, or some one appointed by them independently of the men who regularly have charge of the funds and accounts. In addition to the two examinations in each year, each national bank is compelled by law to make to the comptroller at least five sworn reports of its condition. These were first made on fixed dates, but it was found that as these dates were known the banks would always prepare to make their statement; and the present method is for the comptroller to call for a statement of condition as of some previous date, and these are always made without any notice to the bank on dates which are not fixed by the comptroller until the moment the call is made. A summary of the statement of condition of all banks of the country, divided by states, which is published within two or three weeks after the issuance of a call, gives very prompt and valuable information as to the condition of the banks in all parts of the United States.

BANKS.	Number	CAPITAL.		DEPOSITS.	
		Amount.	Per cent.	Amount.	Per cent.
1882.					
National	2,239	$477,200,000	67.01	$1,131,700,000	39.7
State, etc	5,063	234,900,000	32.99	1,718,700,000	60.3
Total	7,302	712,100,000	100.00	2,850,400,000	100.00
1892.					
National	3,759	684,678,203	63.9	1,767,519,745	37.8
State, etc	5,579	386,394,845	36.1	2,911,594,571	62.2
Total	9,338	1,071,073,048	100.00	4,679,114,316	100.00
1902.					
National	4,535	701,990,554	52.4	3,222,841,898	33.2
State, etc	7,889	499,621,208	47.6	6,005,847,214	66.8
Reporting for tax only	3,732	138,548,654		478,592,792	
Total	16,156	1,340,160,416	100.00	9,707,281,904	100.00
1903.					
National	4,939	743,506,048	50.43	3,348,095,992	32.81
State, etc	8,745	578,418,944	49.57	6,352,700,055	67.19
Nonreporting	4,546	152,403,520		502,522,431	
Total	18,230	1,474,328,512	100.00	10,203,318,478	100.00

It is worthy of notice that, while the national banking sys-

tem has been steadily growing until there are now about 5,200 banks, with the great resources already referred to, the tendency to increase, both in number of banks, capital and deposits, is greater among the banks other than national than among the national banks. The foregoing is a table from the report of the comptroller of the currency for the year 1903.

The national banks, which had 67 per cent of the capital in 1882, had 63.9 per cent in 1892, 52.4 per cent in 1902, and 50.43 in 1903. The national bank deposits, which were 39.7 per cent of the whole in 1882, were 37.8 per cent in 1892, 32.2 per cent in 1902 and 32.8 in 1903. Some of this apparent decrease may be possibly due to more complete returns from the banks other than national which are now obtained, but there is no doubt of the fact that the tendency is for the banks other than national to increase more rapidly. This is true in spite of the fact that the law of March 14, 1900, authorizing the organization of national banks with a capital as low as $25,000, has resulted in the conversion of a large number of state banks in the country towns into national banks, and the organization of a great many national banks to succeed private ones. Probably the principal reason for this tendency is the great increase in the number of trust companies which have been organized during the last ten years. These companies, organized under state laws originally designed to provide for companies doing a strictly trust business, are taking advantage of the liberal character of those laws, and a very large portion of the new organizations are merely commercial banks, having trust company privileges perhaps, but in reality doing comparatively little strictly trust company business. The laws of the different states, particularly in regard to the cash reserves to be held, and loaning money on real estate security, are so liberal that organizations of this character have a great advantage over the national banks in the inducements which they can offer their customers. It is naturally to be supposed that any one contemplating the organization of a new bank, other things being equal, will be inclined to do so under the laws which allow the greatest freedom from governmental interference, restriction and control. The question as to what shall be done in the way of control of these new trust companies is very important.

It would be a great mistake for the different states to allow the national banking system to be broken down or seriously weakened by new organizations which are able to do so because they are less carefully examined and controlled than the national banks. The national system has furnished most excellent banks for the regular commercial banking business. It is not likely to be an improvement to have this replaced by any system of state banks. Much less is this likely to be the case if the inducement to go into the state systems is greater freedom from control, weaker reserves, and less careful management. The modern trust company has been called the highest example of modern commercial organization, and of many of the largest and best companies this is doubtless true. The regular trust company business is a very important part of any financial system, and calls for the highest degree of character, honor and ability.

I quote from a recent writer on this subject, and agree with all that he has said in regard to the trust companies:

"Trust companies are formed for the execution of the most sacred duties that can be imposed by man. The care of the property and welfare of the helpless and the dependent, the widow and the orphan, the feeble and ignorant ones, who are such an easy prey for the unscrupulous, is part of their mission; to carry out the wishes of the dead, who put faith in the company and entrusted their dearest interests to it for years, in the belief that it always would be true and honest; to meet the expectations of the living, who entrust their property to it in full confidence that it always will be faithful and capable; this demands a conscientiousness and thoroughness, which must always serve as a high ideal and inspiring stimulus to right minded men."

When, however, the trust companies cease to do this character of business or attempt to add to it not only commercial banking, but in many cases underwriting and promotion of all sorts of new enterprises, the case becomes entirely different. It can hardly be said to be a reasonable or proper regulation of the banking and trust company business to allow the organization, under the same law, of concerns which not only have the power to act as trustees in all of the important capacities

which the writer has enumerated, but which also have the power, if the management is so inclined, to do a general commercial banking business with little or no cash reserve, and even to underwrite an issue of bonds and securities several times in value the combined capital, surplus and deposits of the so called trust company, as happened in a recent notable case. In another instance trust companies organized under the laws of certain eastern states engaged in the organization of national and other banks in the western states and attempted to pay up the capital with certificates of deposit in the so called trust company. It is true most of the older trust companies have been splendidly managed in every respect, their officers and directors are men of the highest character who can safely be trusted with any business, whether it is in the nature of a trust, commercial banking, promotion, or underwriting. It is not such concerns as this which need control and regulation. Their business will be well and properly done in any event, and probably will come well within the terms of any law intended to control this class of business. Such concerns as this have nothing to fear from regulation, nor should they oppose the attempts to place reasonable safeguards upon the business for the protection, not only of their depositors and creditors, but of the entire country. If there is any reason why a national bank should maintain reserves against commercial deposits, the same reason will apply to commercial accounts in any other bank, whether called a trust company or not. A trust company with a large business in its trust department, if it also has a banking or savings department, owes it to its customers and to the public to see that the banking department is not so conducted as to endanger its trusts in the slightest degree. The very existence of those trust obligations should make its banking department ultraconservative and careful, as so many of them are. The trust company whose chief business is in its banking and savings department and is carefully and conservatively managed, is more interested than anyone else to prevent reckless and incompetent, or dishonest, men from securing similar charters which will permit them to run competing banks, without proper reserves or other safeguards prescribed by experience. Frederick D. Kilburn, superintendent

of the New York state banking department, says in regard to reserves in trust companies for March, 1904:

" After mature consideration of the subject and a study of the existing conditions, I am of the opinion that the whole matter should be regulated by statute. Before this is attempted, however, the banks and the trust companies should agree upon the provisions of any proposed legislation in this direction. All feelings of spite and selfishness, if any exist, should be forgotten. The interests of any particular institution, except as it may be in harmony with the interests of all, should not be considered. The law should be general in terms, and, if any class of deposits are exempted from its operation, sound reasons should be given for the exemption.

"I am well aware that many trust company officials, and some bank officials, will not agree with my view. Some think, and perhaps not without reason, that they are able safely and conservatively to conduct the affairs of their institutions without interference of this or any other kind; but others will sometime take their places, and then perhaps a less experienced and less conservative management will be in control. The whole matter should be adjusted with exclusive regard for the needs of the situation, and with the sole purpose of conserving the interests of all concerned. In the meantime, it should be remembered that trust companies and banks alike are in the main founded upon the same general principles and are dependent to the same degree upon public confidence for success."

In his annual report for 1904, Mr. Kilburn also says:

" The right of domestic trust companies to hold stocks in private corporations might wisely be definitely defined, their right to engage in underwriting schemes unqualifiedly denied, and the obligation imposed upon them to carry a legal reserve. As a part of this latter proposition, I am confident that it would be advisable to require also that these institutions and the state banks in New York make weekly reports similar in scope to those submitted by the clearing house banks and the non-member banks to the clearing house association."

Whatever regulation or control there is to be of the trust companies must come, for the present at least, from the state

governments. Federal control of the national banks has been so satisfactory and successful that there is some desire expressed for federal control of other banks and trust companies. There has not been, however, so far as I know, any practical suggestion made by which these institutions can be forced or persuaded to submit to federal control, especially if it is to be more severe than that now exercised by the states. Federal control, therefore, does not seem to me to be a present practical question.

INSURANCE IN PRACTICE.

BY OSWALD J. ARNOLD.

[Oswald James Arnold, secretary of Illinois Life Insurance company; born Rochester N. Y., Oct. 2, 1872; graduated from the University of Chicago, 1897; on leaving college entered the service of the Illinois Life Insurance company as private secretary to the president; appointed agents and solicited life insurance, and later became assistant secretary, and then secretary of the company; he is also director of two Chicago banks.]

It is a novel statement for the average investor in a life insurance policy to be told that on the issuance of that policy to him, the insuring company would be quite satisfied to take his premium payments in a lump sum, with proper discounts for cash, as to receive it without discount in twenty payments.

Life insurance perhaps appeals strongest to the man who is married, and who all at once is presented with the question of what will happen to his family in case of his sudden death. Perhaps at 35 years old this question assails him, and he answers it by taking out a policy. At the time he may have $1,000 in cash in a savings bank at 3 per cent interest. From this $1,000 he takes just enough to pay the premium for one year on a twenty year endowment policy, leaving the balance at simple 3 per cent in the savings bank. Here, then, is his position between the savings bank and the life insurance company:

To have left the $1,000 in bank at 3 per cent interest, wholly undisturbed for twenty years, the compounded interest at the end of the period would approximate another $800, making a total of $1,800.

But in taking $43.32 from the $1,000 in the savings bank and applying it as a first annual payment of the twenty payments to be made in the next twenty years, the 3 per cent interest on the remaining $956.68 almost will cover the fixed premiums on the policy for the nineteen years. At the end of the twenty year period of the endowment policy the holder of it, having paid out only $866.40 in that period, will receive his guaranteed $1,000, having been insured in all those years against death in any form. Or should fate have interposed in

that first year of the policy's issue and the holder of it died, his family would have received the $1,000 insurance and have had in bank the $956.68 remaining after the payment of the first year's premium—more than the savings bank alone would have had for the heirs at the end of twenty years.

And in the meantime, under honest administration of the affairs of either concern, the bank and the insurance company have only the same common field of investment for the funds of their patrons held in trust. A savings bank ordinarily can claim no security for its investments over the investments of the life insurance company. Indeed, savings banks, as a rule, are given greater latitude by legal enactment in the matter of investments than are the life insurance companies.

How does the insurance company find it possible to offer this seemingly extraordinary inducement above the savings bank?

For several reasons, chief of which is that the bank pays a fixed rate of interest on its deposits of 3 per cent or 3½ per cent. The insurance company, on the other hand—whether on the stock or mutual plan—credits each policy holder with the entire interest earnings on the funds behind his policy. Then again the insurance company is able to earn a higher rate of interest on its funds than is the bank. The bank must hold itself in readiness at all times to convert its funds into cash quickly to repay its depositors on demand, for it cannot foretell what its withdrawals will be. The insurance company can foretell with a marked degree of certainty what its withdrawals will be, and is in consequence enabled to invest its funds in what are known as long time securities, such as mortgages running for a period of years. These pay the company a much higher rate of interest than the bank gets on its short time and demand loans. Then again by a careful selection of applicants for insurance, accepting those only whose family history, physique, and environment are such as to indicate ability to withstand disease, the insurance company is enabled to profit by experiencing a lower death rate than that shown by the table on which its rates are based.

Strange as it may seem, the payment of a death claim by an insurance company does not mean a loss to the insurance

company. By means of mortality tables, the company, knowing the total number of policy holders insured, can foretell to a nicety the amount it will be called upon during any given period to pay out in death claims. Statistics show that, while the duration of any single life is most uncertain, the number that will die from year to year of a thousand or more lives can be foretold with marked precision. Adequate provision is, therefore, made in the premiums collected to cover each policy holder's share of the death claims resulting under policies matured by death.

Your chance of death with 100 others of your own age.

Age.	1 Yr.	10 Yrs.	15 Yrs.	20 Yrs.	25 Yrs.	30 Yrs.	35 Yrs.	40 Yrs.
18	1	8	11	15	19	24	29	35
19	1	8	11	15	19	24	29	36
20	1	8	12	15	20	24	30	37
21	1	8	12	16	20	25	31	38
22	1	8	12	16	20	25	32	40
23	1	8	12	16	20	26	33	41
24	1	8	12	16	21	27	34	43
25	1	8	12	17	21	27	35	44
26	1	8	12	17	22	28	36	46
27	1	8	13	17	22	29	37	48
28	1	8	13	17	23	30	39	50
29	1	8	13	18	24	31	40	52
30	1	8	13	19	25	33	44	57
31	1	9	13	19	25	33	44	57
32	1	9	13	19	26	36	46	60
33	1	9	13	19	27	36	48	62
34	1	9	14	20	28	38	50	66
35	1	9	14	21	29	40	53	68
36	1	9	15	22	30	41	55	71
37	1	10	15	22	32	44	58	73
38	1	10	16	23	33	46	61	76
39	1	10	16	25	35	48	64	79
40	1	11	17	26	37	51	66	81
41	1	11	18	27	39	53	69	..
42	1	11	18	28	41	56	72	..
43	1	11	19	30	43	56	75	..
44	1	12	21	32	45	62	77	..
45	1	13	22	33	48	65	80	..
46	1	13	23	35	51	68	..	..
47	1	14	24	38	53	70	..	..
48	1	15	26	40	56	73	..	..
49	1	16	27	42	59	76	..	..
50	1	17	29	45	62	79	..	..
51	1	18	31	47	65	..	..	..
52	1	19	33	50	68	..	..	..
53	2	21	35	53	72	..	..	..
54	2	22	38	56	75	..	..	..
55	2	23	40	59	77	..	..	..
56	2	25	43	62	..	..	..	..
57	2	27	46	66	..	..	..	..
58	2	29	49	69	..	..	..	..
59	2	31	51	72	..	..	..	..
60	3	33	55	75	..	..	.	..

LIFE INSURANCE

INCOME AND PAYMENTS TO POLICY HOLDERS

From the mortality tables the death rate per thousand of persons at each age is determined, as is also the average duration or expectation of life at each age.

The American experience tables of mortality, for instance, can tell you a good deal more about your chances of life at a given age than you can hope to get from the astrologist, palmist, and others of the cult. Dropping the decimal portion of these tables, the foregoing abstract will show your chances of dying from any or all causes as compared with 100 other persons of your age who may be in health to invite insurance risks. As a key to the reading, take the 10 group at 40 years old, and, looking across to the end of the forty year period, it will be seen that eighty one of the original 100 will be dead.

Having established the deaths in this proportion from the first year of the policy's issue to the age of 96, at which age it is assumed that the last man out of a given 100,000 starting at the age of 10 will die, the insurance company is ready to negotiate with you at any of these ages on the basis of a fixed annual premium for any kind of policy which you may choose to take. There are four of these policy forms in general use. The simplest and cheapest of these is the term insurance policy —usually for five or ten years—in which fixed terms the payments in those years provide for the payment of the death claim, should death occur within the period specified in the policy.

The ordinary life policy ranks second in the amount of premium to be paid annually until death at whatever age. On this form of policy premiums are payable during the whole period of life.

The limited payment policy practically is the ordinary life policy, only that an equivalent of the premiums which would be paid during the ordinary term of life, according to the mortality tables, are paid within a specified time.

After these the endowment policy, for ten or twenty year periods, offers the insured the return of the face value of his policy if at the end of ten or twenty years he shall be living to claim it. This is the form of policy which is comparable in its benefits with the savings bank's interest at 3 per cent compounded semiannually.

"Where and how does my money go?" is one of the natural questions of the premium payer which just now has especial emphasis put upon it by the holder of an endowment policy.

This must be answered upon the assumption that the company issuing the policy is operating legitimately to the interest of the investor. For instance, the first premium you pay in may be divided in half with the agent who wrote your policy —less than this is scarcely possible in the competition for business—or in a less scrupulous company the agent may receive every cent of your first payment. But in any reputable company the man who at 35 years old takes out a twenty year endowment policy for $1,000, the annual premium on which is based on the actuaries' table of mortality and 4 per cent interest, will have his premiums distributed by the company's methods in the following manner through each of the twenty years of the policy, his annual premium being fixed at $48.32 and the fixed charge for company expenses standing at $4.52 of this premium:

Policy year	Age	Premium	For expenses	For death claims	To reserve fund	Amount in reserve end of year	Company's money at risk
1	35	$43.32	$4.52	$9.00	$29.80	$ 31.36	$968.64
2	36	43.32	4.52	8.88	29.92	64.08	935.92
3	37	43.32	4.52	8.73	30.07	98.26	901.74
4	38	43.32	4.52	8.58	30.22	133.29	866.03
5	39	43.32	4.52	8.40	30.40	171.29	828.71
6	40	43.32	4.52	8.18	30.62	210.31	789.60
7	41	43.32	4.52	7.95	30.85	251.12	748.88
8	42	43.32	4.52	7.69	31.11	293.83	766 17
9	43	43.32	4.52	7.44	31.36	338.49	661.51
10	44	43.32	4.52	7.19	31.61	385.19	614.81
11	45	43.32	4.52	6.91	31.89	434.04	565.96
12	46	43.32	4.52	6.61	32.19	485.15	514.85
13	47	43.32	4.53	6.24	32.56	538.67	461.33
14	48	43.32	4.52	5.78	33.02	594.79	405.21
15	49	43.32	4.52	5.21	33.59	653.72	346.28
16	50	43.32	4.52	4.53	34.27	715.69	284.31
17	51	43.32	4.52	3.70	35.10	780.97	219.03
18	52	43.32	4.52	2.69	36.11	849.87	150.13
19	53	43.32	4.52	1.47	37.33	922.74	77.26
20	54	43.32	4.52	0.00	38.80	1000.00	00.00

With this table in detail, showing as a chief feature how the individual policy holder profits from his continuance of pre-

mium paying to the end of the term, the question may be asked, Where does the company's money come from?

The primary source of income is, of course, the premium receipts from the policy holders. If the experience of a life insurance company showed that its expenses each year were exactly equal to the total of the items for expenses, and that its death claims were equal to the total of the contributions for death claims of all its outstanding policies, and that it earned interest on its reserve funds at the exact rate at which it is assumed it would earn interest in constructing its premium rates, the result would be shown in the illustration on the endowment policy above; the company would just be able to fulfill its contracts—pay death losses as they occurred and pay to the endowment policy holder the face amount of his policy, $1,000 at the end of the twenty year endowment period.

The experience of all legal reserve companies, however, shows that in practice the death losses are less than indicated by the mortality tables upon which the premium rates are established, and that interest earnings are in excess of the assumed rate of earnings. This salvage from the mortuary element of the premium and the excess interest earnings, together with any portion of the expense element of premiums not used for expenses, constitutes the principal secondary source of accretion to the companies' funds.

The experience of American companies shows that each policy's share of actual death claims incurred ranges from 85 per cent to 90 per cent of the item "For death claims" included in the premium. The savings out of the expense apportionment is practically nothing. The majority of the companies operating in America in determining their premium rates assume that their future interest earnings will be at the rate of 3 or 3½ per cent; no companies assume a rate higher than 4 per cent. During 1904 the average rate of interest realized by the seventy leading American legal reserve companies was 4.33 per cent. On the average, therefore, the rate of interest earnings was something more than 1 per cent higher than the rate assumed in constructing premium rates now in use.

The salvages on mortality and expense, together with the excess interest earnings, constitute the surplus funds of life

insurance companies; it is from this fund that dividends are paid.

During 1904 the American legal reserve companies increased their reserve funds from $1,978,166,083 to $2,168,468,541, being an increase of $190,302,458. In the same time they increased their surplus funds from $268,621,596 to $330,492,427, being an increase in surplus of $43,870,931. The assets—reserve and surplus—of all the legal reserve or "old line" life insurance companies on Dec. 31, last, amounted to $2,498,960,968.

The last few months have made the question as to where this enormous reserve and surplus fund of insurance companies is invested a pertinent one. A careful compilation of the investments of the ninety three regular and industrial old line companies of the United States shows that on Dec. 31, 1904, the investments were distributed as follows:

Real estate, $180,875,035; bonds and mortgages, $671,577,813; bonds owned, $1,067,027,851; stocks owned, $172,582,075; collateral loans, $42,715,261; premium notes, $19,300,755; loans on policies, $170,438,024; cash in office and bank, $104,027,124; net deferred and unpaid premiums, $45,879,455; all other assets, $24,636,705. Total, $2,408,960,968.

THE INSURANCE INVESTIGATION.

BY GILBERT E. ROE.

[Gilbert E. Roe, attorney, was formerly the law partner of Senator La Follette in Madison, but when the firm was dissolved upon Mr. La Follette's entrance into active public life, he removed to New York where he is at present practicing law. Mr. Roe has taken an active interest in public questions, especially in the insurance situation which he has investigated from the point of view of the insured.]

Life insurance, as generally conducted, and its evils and abuses are tremendous facts in our social and commercial and even political life with which we must deal now. With these facts, and not with theories, I purpose to deal in this discussion. I venture also to hope that I may show that the evils of life insurance now being revealed to the world are merely grafted upon it and not inherent in it; and that those evils may be easily, quickly and completely eradicated.

The first thing to do in entering upon any discussion of life insurance, is to free our minds from the idea that the business is mysterious or deeply complex. However much those interested in confusing the public regarding it may seek to give it that character, the principles of the business are simple and easily understood.

Life insurance is merely a method or plan by which the many help bear the burden of financial loss incident to the death of one. Life insurance conducted upon the mutual plan, merely means that a large number of persons combine and agree that upon the death of one of their number the survivors will pay to the beneficiary, designated by the deceased, a certain sum of money. As some one must collect and disburse the money, agents are appointed by the members or persons insured, who are charged with that duty, and these agents are called officers. The aggregation of persons so combined and agreeing is called a life insurance company or association. Surely there is nothing mysterious or beyond the ability of the average person to understand in this. Thus viewed, every person who takes life insurance insures not only his own life, but helps to insure the lives of all his associates.

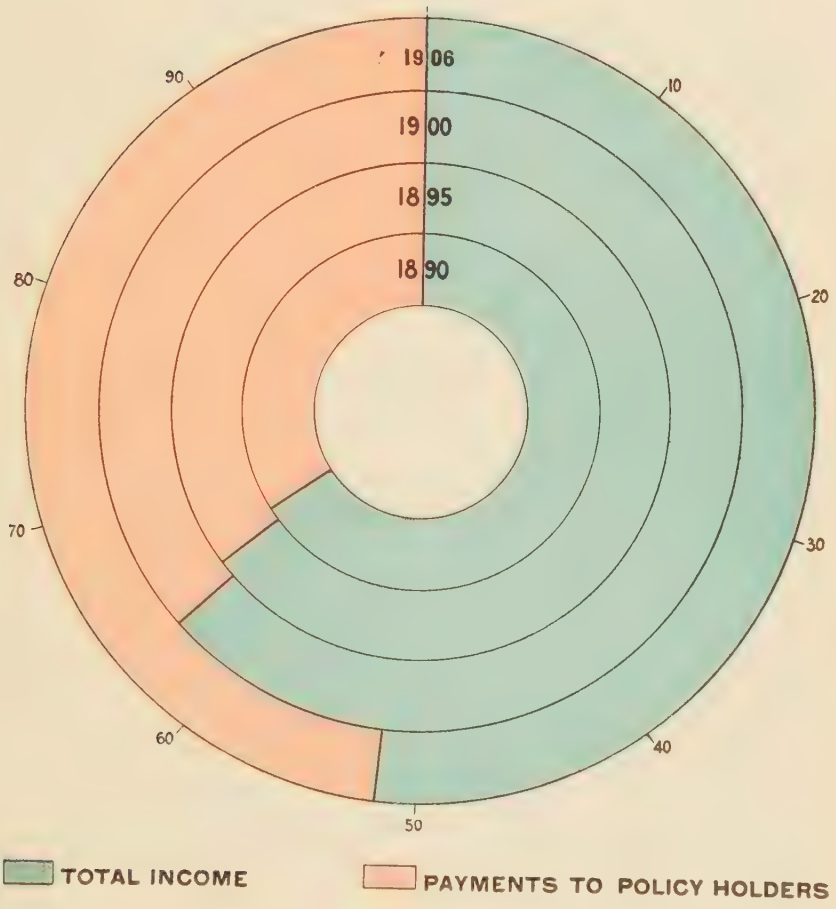
As he knows that some of his associates are certain to die and receive the agreed amount of insurance before they have contributed a like amount to the common fund, he becomes a voluntary contributor to the benefits received by others, and to that extent he sows that others may reap. In another view, life insurance is no less beneficent, though in a sense selfish. It enables the head of the family to provide even after death for those dependent upon him during life. It enables all of us to furnish financial help to those who are the objects of our care, our bounty or our love, when death has deprived them of our service. The average life insurance policy is less than twenty-three hundred dollars in amount. The large majority of all premiums paid represent stern self denial on the part of those paying them. It is a story of comforts omitted and often necessities denied that the life insurance premium tells to the officers receiving it. Under these circumstances it surely is not too much to expect rigid economy and strict fidelity on the part of those whose duty it is to collect and disburse this money.

If I were to attempt to be strictly logical in the treatment of my theme, I should probably begin with a discussion of the excellent work done by the state legislative committee conducting the insurance investigation, and follow that with an analysis and condemnation of the evils which that investigation has shown to exist, and then propose a remedy for the evil conditions disclosed. A little reflection convinced me, however, that by this method I could only cover a small part of the field in the limits of the present article, and that I would be obliged to leave unsaid, for lack of time, the most important things to be said, on the subject; moreover, this method of treatment, which is the only one thus far accorded the subject that I have observed, has resulted only in confusing the public mind and rendering it less capable than before to deal intelligently with the momentous question presented.

Neither is it any part of my plan to indulge the very natural feeling of resentment against unfaithful insurance officials by calling them names. We can truthfully say of each leading life insurance official thus far investigated, as Anthony said of Cæsar: "But yesterday" his word "might have stood

FIRE INSURANCE

1890-1906



against the world, now lies he there and none so poor to do him reverence." And I think you need have no fear that any official will find an Anthony to stir "your hearts and minds to mutiny and rage" in his behalf.

But it will profit the policy holder little that recreant officials are deposed or even imprisoned, if the system is continued in which is inherent the evils which now stand revealed. We must deal with conditions, not with men. We may very properly ask the question, How much did they get? and the present insurance investigation is engaged in trying to answer that question. But the more important question is, How did they get it? Once we know just how they got it, we can easily see to it that they get no more in the same way. In telling how the insurance officials got it I shall merely relate the story of life insurance as it is found in the history of those companies thus far more completely investigated, known as the big three, namely, the Mutual Life, the Equitable Life association and the New York Life. These may safely be taken as types of all and serve as illustrations for our present purpose.

The Mutual Life Insurance company was incorporated by a special act of the New York legislature April 12, 1842, and began business in February, 1843. The New York Life Insurance company was the outgrowth of the Nautilus Insurance company, which was organized by a special act of the New York legislature, passed May 21, 1841. The Nautilus company was really organized to do a fire and marine business. The act of 1841 was amended by a special act in 1843, so as to permit the doing of life insurance business, and in 1845 the New York Life Insurance company was organized under the amendment and began writing life insurance policies in April of that year. The Equitable Life Insurance association was organized in 1859 under the general insurance law of New York of 1853. The Equitable Life differs somewhat in the form of its organization from the Mutual and New York Life, in that it has a capital stock of $100,000, divided into one thousand shares of $100 each.

Upon its stock the Equitable is authorized by article III of its charter or articles of association to pay a semi-annual dividend not to exceed three and one half per cent. Article

VI of the charter of the Equitable Life contains this provision: "The officers of the company within sixty days from the expiration of the first five years from December 31, 1859, and within the first sixty days of every subsequent period of five years, shall cause a balance to be struck of the affairs of the company, which shall exhibit its assets and liabilities, both present and contingent, and also the net surplus after deducting a sufficient amount to cover all outstanding risks and other obligations. Each policy holder shall be credited with an equitable share of the said surplus." Then follows a provision for applying the surplus in reduction of future premiums or otherwise, as the policy holder may direct. Then follows this provision: "In case of death the amount standing to the credit of the party insured at the last preceding striking of balance, as aforesaid, shall be paid over to the person entitled to receive the same; and the portion of surplus equitably belonging to him or her at the next subsequent striking of balance, shall also be paid when the same shall have been ascertained and declared." Article VI also provides: "The insurance business of the company shall be conducted upon the mutual plan." Section 13 of the charter of the Mutual Life Insurance company contains almost identically the same provision on the subject of the distribution of the surplus as the charter of the Equitable. The charter of the New York Life was slightly different, and provided that dividends should be made annually from premiums earned, after deducting losses and expenses, and that until paid they might at the discretion of the trustees bear interest at a rate not exceeding six per cent per annum.

The report of the New York Insurance department for the year 1868 contains a reply made by each life insurance company doing business in the state of New York to the following question: "How often does the company declare dividends or bonuses of surplus and when and in what manner are the same paid? And are such dividends made upon the basis of an equal percentage upon the premiums, or how otherwise, and upon what principles?" To this question the Equitable answered: "Annually—on the contribution system, dividends applied to the increase of policies or in payment of

premiums." The Mutual Life Insurance company answered: "Dividends are declared annually." The New York Life Insurance company answered: "Dividends are declared annually." Such in substance were the answers also of all the companies reporting to the New York department.

What do the words surplus and dividend mean, in the fundamental law of these companies, referred to above, and in the reports made to the insurance commissioners? Whatever the words mean and from whatever source surplus is derived, I have now conclusively shown that up to the year 1868, at least, the surplus was always returned to the policy holder at short periods varying from one to five years. The answer to this question requires a somewhat further explanation of the principles upon which life insurance is conducted. There are two fundamental facts which all rational life insurance recognizes. The first is, that all men must die, and the second is, that the probability of dying, disregarding the years of infancy, increases with increasing age. So certain is this latter fact that, starting with a large number of lives, say one hundred thousand at age ten, it may be prophesied with approximate certainty how many will die in each succeeding year. The experience of one American life insurance company combined with that of seventeen English life insurance companies in this matter, was gathered, and about forty five years ago formulated and set forth in a table which is called the American Experience Table of Mortality. There are also other mortality tables, but this is the one most commonly used in the United States. Starting with one hundred thousand lives at age ten, this table shows how many are expected to die each succeeding year, the death rate increasing with increasing age, until age ninety five is reached, when, according to this table, three persons are alive, and these are expected to die during that year. It becomes, therefore, a comparatively easy matter for a life insurance company by the use of the mortality tables to approximate the loss by death which its membership must suffer from year to year and the amount of insurance which in consequence must be paid.

Now it is perfectly obvious that there are two purposes for which the funds of an insurance company may be properly

expended. One is to meet the legitimate expenses of conducting the business, the other is to meet death losses as they occur. Every premium, therefore, contains these two elements, or at least it may properly be applied to these two objects. As, however, the death rate increases rapidly with increasing age, the premium rate to meet death losses among the very old would necessarily be practically prohibitive. To avoid this and in order that the premium may be kept level, or at the same sum throughout the life of the policy, what is called a reserve is accumulated. With the reserve we have little to do in the present discussion. It may roughly be described by saying that the company, by means of the mortality tables, can compute approximately the number and amount of its policies, among the large number outstanding, which will probably mature by death in each succeeding year, and a sum is held or reserved which, compounded at the rate of interest required by law, will enable the company to pay all its policies as they mature. Generally speaking, it may be said that the reserve is a sum laid aside out of the premiums paid which, compounded at the rate of interest which the law requires, will, when the last person dies during his ninety fifth year, according to the mortality table, be just sufficient to pay the final death claim. The law of every state fixes some low rate of interest which the reserve fund must earn, ranging usually from three to four per cent. It is the reserve, with future premium payments, that keeps the company solvent and makes it certain that its death claims will be paid as they mature. With the reserve we have nothing further to do in this discussion, and my only purpose in mentioning it was to distinguish between it and another accumulated fund of the company which is called the surplus.

Surplus is just what its name indicates. That which remains above what is used or needed; excess beyond what is prescribed or wanted; more than enough. If it were possible for those conducting the business of a life insurance company to know the future, to know in advance each year how many members would die, and the claims which would mature and the interest which the money of the company would earn and the expenses which it would need to incur, there would be no

such thing as surplus. The premium which is paid in advance would be made just sufficient to meet the requirements of the company during the period covered by the premium. But because these matters can not be known in advance with absolute certainty, they must be estimated; and because all estimates are, and very properly should be, made on the side of safety, it comes about necessarily that more money is collected according to the estimate than is properly and necessarily used in meeting the actual expenses and paying death losses that actually occur; and this excess is called the surplus.

The amount of this surplus which is from time to time returned to the policy holder, is called, though improperly, a dividend. It is not properly a dividend at all; it is merely the repayment to the policy holder of the money collected in excess of what has subsequently been found necessary to meet the needs of the company. That is why it is returned to the policy holder. The surplus is derived practically from three sources: First, gains made from investments in excess of the interest rate which the company assumed its funds would earn; second, lower mortality than estimated according to the mortality table employed; third, less expenses than estimated and provided for in the loading of the premiums, as it is called. A possible fourth source of surplus, though not strictly so, may be said to be the accretions from forfeitures and surrender charges.

The accumulations from these sources are necessarily very large. The mortality tables by which the number of deaths to be anticipated are calculated were compiled many years ago, since which time medical science and improved methods of living have greatly lessened the death rate. So also the excess of the interest earnings over the estimate is very great. The aggregate surplus according to the reports of the three companies which we are using as illustrations, in 1894 amounted to seventy seven million twenty one thousand four hundred and eighty five dollars. In 1904, according to their reports, it amounted to two hundred and two million two hundred and eighty thousand eight hundred and nineteen dollars, an increase of substantially a hundred and twenty five million dollars in ten years. Or, to put it in another way, the aggre-

gate surplus of these companies was approximately two and one half times greater in 1904 than it was ten years previously. If this proportion of increase is continued within the life of the present generation, the surplus of these three companies alone will amount to more than the present interest bearing national debt. During the ten years from 1893 to 1903, the national banks of this country showed a combined surplus increase of a little more than thirty four per cent, while the forty one life insurance companies reporting to the New York department during the same time showed a surplus increase of one hundred and ninety five per cent. Under the system of surplus accumulation now practiced, every hamlet and almost every home of this country pays tribute to this fund.

There seems to be a popular idea that in some way the surplus adds to the security of insurance. The opposite is true. As we have seen, the surplus is wholly unnecessary for the payment of death losses or legitimate expenses. That is why it is surplus. It is the fund that is left after the death losses and legitimate expenses of the business are met, and should be returned to the policy holder from year to year, or time to time, as the amount of this over payment is determined. Because it was never contemplated that such a fund would be accumulated, the law makes no provision for its earning anything, as it does in the case of the reserve. With no surplus the reserve must be carefully invested and compounded in order to earn the amount which the law requires. With the surplus on hand, the life insurance officials may speculate even with the reserve, instead of investing it in the securities required by law, and if any portion of the reserve is lost, make it good out of the surplus.

It is the surplus that is being used to-day to pay fabulous salaries to incompetent life insurance officials, who, according to their testimony, know less about the business of their companies than the average policy holder knows. It is the surplus that is being used for speculation for the personal gain of the officers of the companies. It is the surplus that the officers are loaning to their friends and themselves at one to two per cent interest. It is the surplus that is being used to control the legislation of the state and nation, not only where life

insurance is involved, but upon other subjects as well. It is surplus that is being used to make and unmake political parties and public men. More menacing than all else, perhaps, it is the surplus which is being used as a compact money power in the hands of five or six men to control the industries of the country.,

Why did Mr. Ryan pay to James H. Hyde millions of dollars for five hundred and two (502) shares of stock in the Equitable, which under the charter can never pay in dividends to exceed three thousand six hundred and forty ($3,640) dollars a year? Why did Mr. George Gould and others offer fabulous prices for this insignificant amount of stock? Simply because it would give them control of the surplus. They did not expect to be officers of the company. They expected, however, to elect the officers of the company. Once elected, the officers would have precisely the same power, and no more, that officers of the purely mutual companies have. What matters it, then, if the Equitable should be, as it is called, mutualized? The policy holder would be in precisely the same position that he now is in the Mutual, the New York Life and other purely mutual companies.

You may very properly ask at this point two pertinent questions: First, how is it that insurance companies whose charters require them to distribute the surplus annually or at short periods among their policy holders, are able to accumulate and hold it indefinitely for the profit of their officers? Second, how is it that in purely mutual companies where the policy holders elect the officers each year, that the persons who wrongfully withhold hundreds of millions of dollars from the policy holders are continued in office?

These two questions I purpose to answer in their order, and the answers to these questions will, I am confident, suggest the solution of this entire question.

In the year 1877, a legislative investigation of insurance companies took place in this city. The report of these proceedings has been printed, and to the facts contained in that report, I shall have occasion to refer from time to time. I think that it has been generally assumed that the scheme by which policy holders have been defrauded out of their surplus

had, at least, the merit of great cleverness. From the examination I have made of the origin of this scheme, I am convinced that it does not possess even that poor merit. At the time of the legislative investigation of 1877, Henry B. Hyde, the father of James Hazen Hyde, was president of the Equitable Life Assurance society. At page 35, volume I, report of that investigation, I find an affidavit from Mr. Henry B. Hyde in which he sets forth the extra compensation that he received from the company in addition to his salary. That extra compensation took the form of a certain percentage paid him upon the surplus of the company. According to that affidavit, this extra compensation for the years 1864 and previous amounted to $16,199.

In 1874, it amounted to $50,000. By the testimony of William H. Beers, then vice president of the New York Life, and afterwards its president, found in volume II, page 35, it appears that substantially the same arrangement was made effecting the compensation of the officers of the New York Life. By the testimony of Mr. Richard A. McCurdy, then vice president of the Mutual Life, afterwards its president, it seems that the officers of the Mutual had the same habit of voting bonuses to themselves based upon the surplus (see volume II, pages 98–99). And that these bonuses or percentages of the surplus which the officers of the company voted to themselves were falsely stated in the reports of the company to the insurance department to be dividends paid to policy holders. At page 152, volume II, Mr. McCurdy testifies:

Q. Where in the report is the payment of the bonuses charged?

A. At that time? (Referring to the year 1870.)

Q. Yes.

A. Well, the theory of the actuary we had at that time was, that that was a proper charge to the dividends to the policy holder because it was part of the earnings of the company, and should be participated in by them.

Q. In what part of your account does it appear, then?

A. It appeared at that time as dividends paid, I think; I have such an understanding in my mind; at this date I have an impression it should not be charged so, but the amount was

charged to the dividend and passed to the dividend account.

Q. It was not dividend as such, was it?

A. Well, it was part of the dividends earned by the company.

Q. But not what the officers were entitled to as policy holders?

A. I am not defending it and it stopped right there; it was a theory that prevailed then, but we have learned better since.

Think of not only taking the policy holders' money in this way, but actually crediting it as having been paid to the policy holders!

The time referred to by this witness is shown, on the same page of the testimony, to be the year 1870. The time that the witness was testifying was March 28, 1877. This crude method of looting the treasury was, as this witness says, abandoned in the early seventies because they had learned better. It was never very clever, but it was this idea of voting themselves bonuses upon the surplus that no doubt suggested the desirability of making the surplus as large as possible so as to increase the amount of the bonus. The ease with which these bonuses could be voted to the officers and then covered up by charging them to the dividends paid to policy holders, suggested also the great possibility of concealment contained in a large surplus. Since a large surplus was not contemplated by the law, it was required to earn nothing, and it was easy to account for any money which might disappear from a company by calling it surplus and charging it as paid out in dividends. Of course, this was all very petty and crude, as compared with what the officers of the insurance companies are doing at the present time. As Mr. McCurdy says, they have learned better now. They have improved upon these early, primitive methods; but the idea that found lodgment in the brains of the insurance officers at this time was the desirability of increasing the surplus.

Straight across the pathway of each company, forbidding large surplus accumulation, was the provision in its charter requiring distribution of the surplus to be made at short periods. The first thing to do, therefore, was to get rid of those

charter provisions, and the best, quickest and easiest way to do this was by means of a general law. To have amended all the charters would have attracted too much attention, and also probably would have been very expensive. Some attempt was made in 1868 to get a law that would accomplish the desired result, but it was not until 1872 that the law was obtained which struck down the provision in every charter requiring short period distribution of the surplus, Chapter 100 of the laws of 1872, section 83 of the present insurance laws provides:

"Distribution of Surplus to Policy Holders.—Any domestic life insurance corporation may ascertain at any given time, and from time to time, the proportion of surplus accruing to each policy from the date of the last to the date of the next succeeding premium payment, and may distribute the proportion found to be equitable either in cash, in reduction of premium or in reversionary insurance, payable with the policy, and upon the same conditions as therein expressed at the next succeeding date of such payment, notwithstanding any thing in the charter of such corporation."

This law, while drawn so as to be obscure, permits the surplus to be ascertained not at short periods, but at any time. It permits it to be distributed not at short periods, but upon such conditions as may be provided in the policy, any thing in the charter to the contrary notwithstanding. Such is its interpretation by the courts (Greeff vs. Equitable Life, 160 N. Y., 19). Strangely enough, a law effecting this same purpose was passed at about the same time by the legislatures of nearly all the states in which leading life insurance companies were incorporated. The proposition was now easy. Insert in the policy form, in fine print, among one of its innumerable conditions, a proviso, that distribution of the surplus shall be postponed for twenty years, or any other period, and forfeited in case any premium is not paid, and the scheme of building up a surplus is complete. Give to the agents more commission for writing this kind of policy, as all the companies admit they do, and the accumulation of surplus becomes a certainty.

The history of the Equitable is the history of the others

in this matter. In 1870 the surplus of the Equitable amounted to only $408,434. This is the sum which would naturally be accumulated under the plan of short period distribution then in operation.

In 1880, only eight years after the passage of this law, the surplus had been multiplied to $6,555,654.

In 1890 it had become $21,510,671.

In 1900 it had become $65,923,573, while the divisible surplus of the company, December 31, 1904, is reported by it as being $78,944,061.31.

I have now answered the first question and shown you the origin of surplus accumulation and how it has been successfully carried forward to the present time. Large surplus accumulations, as we have now seen, originated in no requirement of the business, but in the selfish greed for personal gain of life insurance officers. The fundamental law of the insurance companies themselves had forbidden this accumulation. To change the law, therefore, became the work of the unfaithful officers.

Here also is another milestone in the history of life insurance. The ease with which these men were able to break down the law protecting the surplus of the policy holder suggested to them the possibilities in controlling legislation in other directions. We have heard in this insurance investigation that it was necessary to maintain an insurance lobby because strike legislators would blackmail the insurance companies otherwise. Were the companies being blackmailed when they obtained this first piece of legislation which has permitted the policy holders to be robbed of more millions than can ever be known? Were the companies being blackmailed when later, little by little, they broke down the laws prescribing the securities in which the policy holders' funds could be invested? Were the insurance companies being blackmailed when, in 1890, section 56 of the present insurance law in this state was passed, forbidding the commencement of proceedings by injunction, or for an accounting or for the appointment of a receiver against an insurance company to be instituted by policy holders without the consent of the attorney general? Is it because they have been blackmailed that certain gentlemen find it conveni-

ent to sojourn beyond the seas while the present investigation is in progress? If any insurance companies are being blackmailed, it is because they have invited it. Lincoln Steffen says, "You can't blackmail a man who won't pay a bribe." As applied to our present discussion, I fear his statement might be paraphrased by saying that you can't blackmail an insurance company that has not paid a bribe. This evil, however, like all the others, has its origin in the one thing, an unnecessary surplus.

Why don't the policy holders who must elect their officers annually elect men who will return these surplus accumulations as rapidly as possible and cease accumulating them in the future? Let our old friend Mr. McCurdy, from whom I have previously quoted, tell us. I quote from his testimony, volume II, page 115, legislative report of 1877:

Q. Let me ask you if you have any proxies from any one?

A. Yes, sir.

Q. To what extent?

A. I don't know, sir.

Q. Have you no idea?

A. No, sir.

Q. You don't know whether you have one or a hundred thousand?

A. Well, if you won't accuse me of being facetious again, permit me to say that we give them the name of the children of Israel; because the children of Israel were never supposed to be numbered, and we never counted them, and don't mean to.

That is all there is of it.

By getting proxies from policy holders these insurance officials merely meet annually in their board room and go through the form of re-electing themselves. By letting no one know the number of proxies held, it is rendered almost certain that no one will attempt to wrest control from the present officers, for no one can tell what number of votes it will be necessary to have in order to do it. Even if the outraged policy holders should combine, as a result of the disclosures of the present investigation, and elect new officers, it would do no good. So long as the policy holder's money in the form of

surplus is withheld from him, it does not make any difference whether it is withheld by Mr. Hyde or Mr. Alexander or Mr. Paul Morton, or for that matter by ex-President Cleveland. It is the unnecessary withholding and accumulation of the surplus by any one that at once robs the policy holder and debauches the officials.

If I have stated clearly the facts that I have tried to state, I need spend no time in pointing out the remedy. The remedy suggests itself. Repeal the laws permitting the surplus accumulation and pass a law compelling, as rapidly as consistent with safety, surplus distribution. Put the business back on the foundation upon which it rested in the beginning. Restore to it the principle of protection to the policy holder by short periods of surplus distribution, without which the business would never have had a beginning, much less its marvelous growth. In doing this you are doing no more than a few insurance companies have voluntarily done for over fifty years, at all times with great profit to the policy holder and credit to the managers of the companies. In doing this you are doing no more than the laws of Germany, at least, now require; and with which laws the New York Life Insurance company complies in that country, in order that it may continue to do business there.

Already the signs are many that ingenious efforts are to be made to pacify the policy holders with something less than their rights and the public with something other than justice. The present New York legislative investigation is replete with startling information as to how the policy holders' money represented by the surplus, in the hands of insurance officers, has been misapplied; but the question is, Why is the policy holders' money there at all? The present insurance officials are being execrated from the pulpit and through the press; some have been deposed and others will be deposed. But what profits it if the surplus remains for a new set of officials to convert to their own use either by the methods with which we are familiar or by new ones to be easily invented? Salaries are being reduced, and will be further reduced. We may almost hope to see the day when a president of a life insurance company will not receive much more in salary than the president of the

United States receives. But why reduce salaries and other expenses merely to increase the surplus accumulation? Federal supervision of life insurance is proposed, and the humor of this proposition is that it is proposed by the insurance officials themselves, who have been the greatest offenders. Every insurance department of every state and territory in this country could have investigated in the most complete manner the affairs of these companies, and most of them in recent years have done so; yet it remained for a personal quarrel between Mr. Hyde and Mr. Alexander to reveal the true condition of the Equitable society, which revelation in turn set in motion the present investigation. There is no doubt that the insurance departments in many of the states are honestly and ably conducted, and that they have done all that any department could do to investigate and supervise these companies. Federal supervision could do no more than state supervision has done, and the right of federal supervision is, to say the least, doubtful in point of law. It would seem much easier also for the companies to deceive one department than many, and that seems to be the idea of the companies, since they favor federal supervision.

So long as human nature remains as it is, and the surplus accumulation is continued, the conditions which our present investigation has shown to exist will continue. Restore to the policy holder the money of the policy holder now withheld from him, without justification or excuse, and the life insurance problem is solved. In no other way can it be solved.

EARNINGS PER INHABITANT
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2000
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RUSSIA
DANUBE STATES
ITALY
AUSTRIA
SWITZERLAND
DENMARK
FRANCE
UNITED KINGDOM
AUSTRALIA
UNITED STATES
CANADA
GERMANY
BELGIUM
HOLLAND
SCANDINAVIA
SPAIN
PORTUGAL
GREECE

THE INDUSTRIAL AND FINANCIAL FUTURE OF THE UNITED STATES.

BY FRANK A. VANDERLIP.

[Frank A. Vanderlip, banker; born Aurora, Ill., Nov. 17, 1864; educated in public schools, University of Illinois and Chicago; began his business career as a reporter on the Chicago Tribune, of which he later became financial editor; associate editor of the Economist, 1894–7; became private secretary to Secretary of the Treasury Gage, 1897, and later in the same year assistant secretary of the treasury; became vice-president of the National City bank, 1901. Author of many articles on economic topics.]

It has seemed to me fitting to attempt to review, in the briefest manner, a few of the figures illustrative of our material progress and to try to draw some deductions from them. In order to get a setting for our comparisons, let us for a moment glance back at conditions during the years when we were just emerging from the depression of the panic year of 1893, and when we were facing a great political and economic conflict over the silver issues. The whole world was filled with distrust in regard to the future of our standard of value and the chilling shadow of that distrust was falling heavily on our commerce and finances.

Then came the definite verdict of the people, declaring for a sound currency, and following that began an unexampled era of prosperity such as no other country, in any age, has ever known. The expansion went beyond all the experiences of men of affairs. We had learned lessons of economy, of careful management and of cheap production in the depression whch followed the panic of 1893, and now we suddenly waked to the fact that we had obtained a grasp on the markets of the world. Our exports of manufactures ran up from $183,000,000 to $433,000,000 in half a dozen years, and this increase of $250,000,000 in the annual average of our exports of manufactured products made Europe stand aghast at what was denominated the American commercial invasion. Our general foreign trade balance assumed such totals as to cause economists seriously to consider what was to happen to the rest of the industrial world if this march of progress went on.

In half a dozen years we piled up against other countries a trade balance in our favor of more than $2,600,000,000, a trade balance far larger than the net trade balance had been from the beginning of our government down to the time when this remarkable expansion started.

And then we made mistakes. We were in the midst of a prosperity so great that it went beyond the experience of the most experienced. With the flood tide of this prosperity covering all of the old landmarks, it was small wonder that there were blunders made in steering the craft of business. We ran into excesses, extravagances and miscalculations. Capital made mistakes of over-capitalization; labor made mistakes of arbitrary and unwise demands; every body made mistakes of extravagance. Producers made errors in estimating the demand and made miscalculations in the multiplication of their productive capacity. Those errors of estimate were almost unavoidable. There was a surplus demand above our productive capacity, and that demand went knocking at the door of first one factory, then another and another, producing the impression on the mind of each individual manufacturer that the demand legitimately pressing upon him warranted him in doubling his plant; and when every one started to double his productive capacity, capacity soon ran ahead of demand.

The railroads were caught in much the same situation. They made huge engagements for expenditures which they felt were necessary in order to handle the traffic that was pressing on them. For the time being, far too great a portion of liquid capital was absorbed into fixed forms of investment. Directly and indirectly, bank credits which were payable on demand were, in a dangerous proportion, converted into new manufacturing plants and into new railroad tracks, equipment and terminals. Bank reserves fell until they were a danger signal pointing with certainty to the need for more conservative administration. Banks applied the financial brakes of higher interest rates. Stock market values, unduly inflated by the spirit of optimism which was all pervading, began to melt.

In 1902 this turn came. The decline which followed cut a billion dollars off the value of securities in a few months.

WEALTH OF THE WORLD PER INHABITANT
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1600
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RUSSIA
SCANDINAVIA
ITALY
SPAIN
ARGENTINA
SWITZERLAND
CANADA
FRANCE
UNITED STATES
UNITED KINGDOM
AUSTRALIA
DENMARK
HOLLAND
GERMANY
BELGIUM
AUSTRIA
ROUMANIA
PORTUGAL

The vast readjustment which such a change in values made necessary was accomplished, however, without panic, without great failures, and with few of these disasters which usually are the features of such a period. The way the country met the situation stands to-day as the most striking monument we have yet reared to our increasing wealth and financial strength.

Ten years ago we had a population of sixty eight millions; to-day it is eighty two millions, and ten years hence, with this ratio of increase, the population of the United States will be ninety eight millions. We will in the next ten years add to our number a population equal to one half of France. Such growth in numbers matched to our wealth of resources makes the sort of material out of which to shape an entirely new level of statistics marking the country's material progress.

The total wealth of the United States, according to the best estimates which we have, has risen in ten years from $75,000,000,000 to $106,000,000,000. Ten years more of increase will make the wealth of this country $140,000,000,000. When we remember that such a total will compare with the total of $42,000,000,000 in 1880, the accumulation is seen to be at a rate almost incredible.

Our money stock has increased in ten years from $1,600,000,000 to more than $2,500,000,000, and every dollar of it is sound and every dollar of it is on a parity with gold. The actual gold stock itself increased in that period $250,000,000. If the money stock increases in the next ten years in the same amounts, we will have $3,400,000,000 of circulation at the end of that period. Incidentally, it is interesting to note that national bank note circulation in the last ten years has risen from $172,000,000 to $411,000,000; and one might stop to wonder, if this rate of increase is to go on, where the government bonds are to come from in the next ten years to provide for a further increase of national bank circulation of $250,000,000 or $300,000,000. Such inquiry points inevitably to the necessity of some change in our national banking laws in the due course of time.

National bank deposits in ten years have doubled, going up from $1,600,000,000 to $3,300,000,000. State bank de-

posits in that time have trebled, marking an increase of from about $660,000,000 to $1,900,000,000.

A careful estimate of the total bank deposits in the United States to-day—national, state, savings banks and trust companies—brings them up to a grand total of $10,000,000,000, and that compares with a total ten years ago of $4,600,000,000. The increase has been well over double. Will it double again, and will we have $20,000,000,000 deposits in 1914? If we only make the same actual gain, we will have over $15,000,000,000; and barring any unexpected interference with our expansion, I believe that that is a conservative figure and inside the probabilities.

In ten years we have seen railroad gross earnings increase from $1,200,000,000 to $1,900,000,000. With only an equal actual increase, we will have railroad earnings of $2,600,000,000 ten years from now; while, if the percentage of increase of the last decade were to be maintained, the figures would reach $3,000,000,000. The lower total is the fairer presumption. With gross earnings reaching such a figure, with constantly improving methods of administration, and with more perfect roadbeds and equipment, we may expect to see steadily increasing economy of operation. Is it not fair to presume, then, that these vast gross earnings, coupled with a decreasing ratio of expenses, will most certainly provide for an increasingly satisfactory return upon railroad investments?

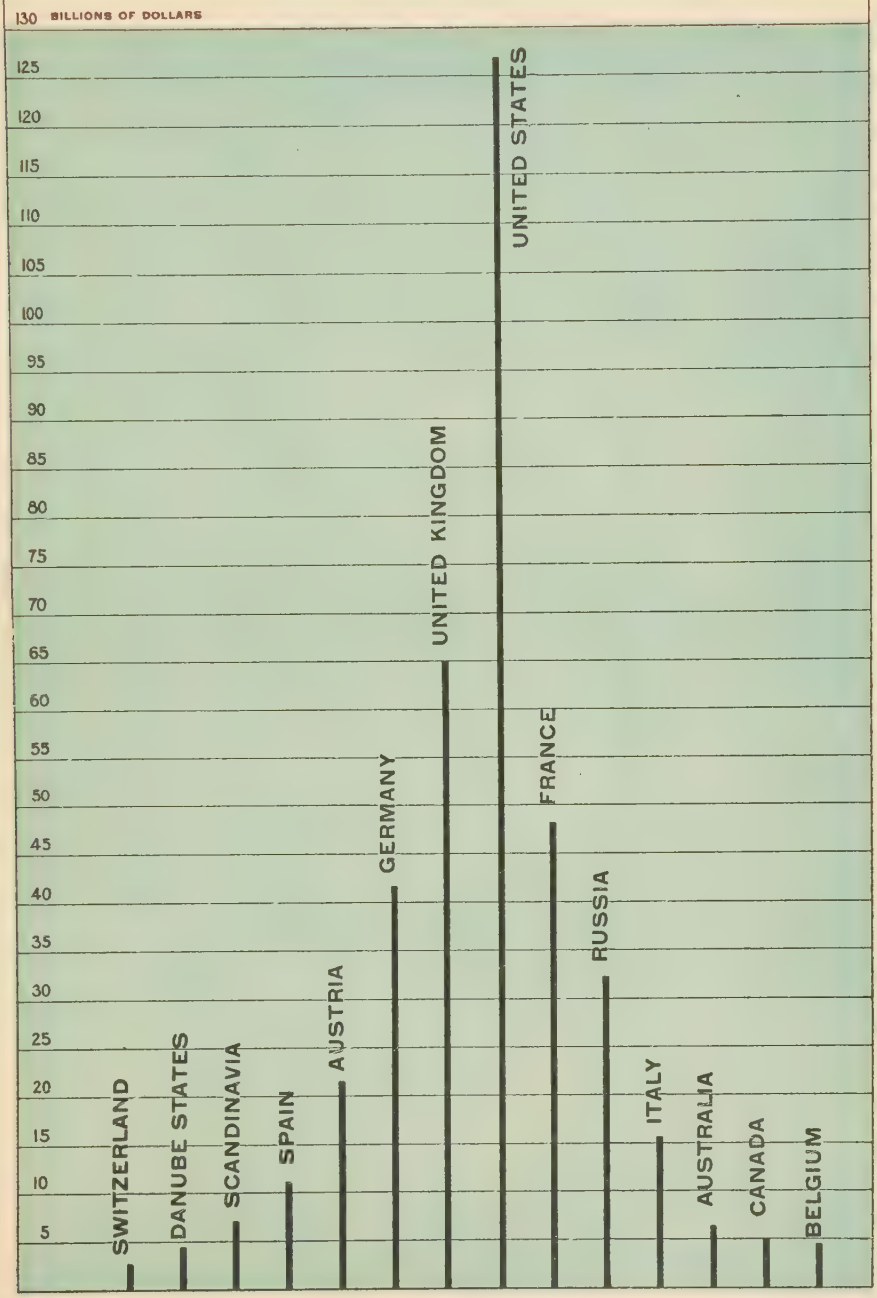
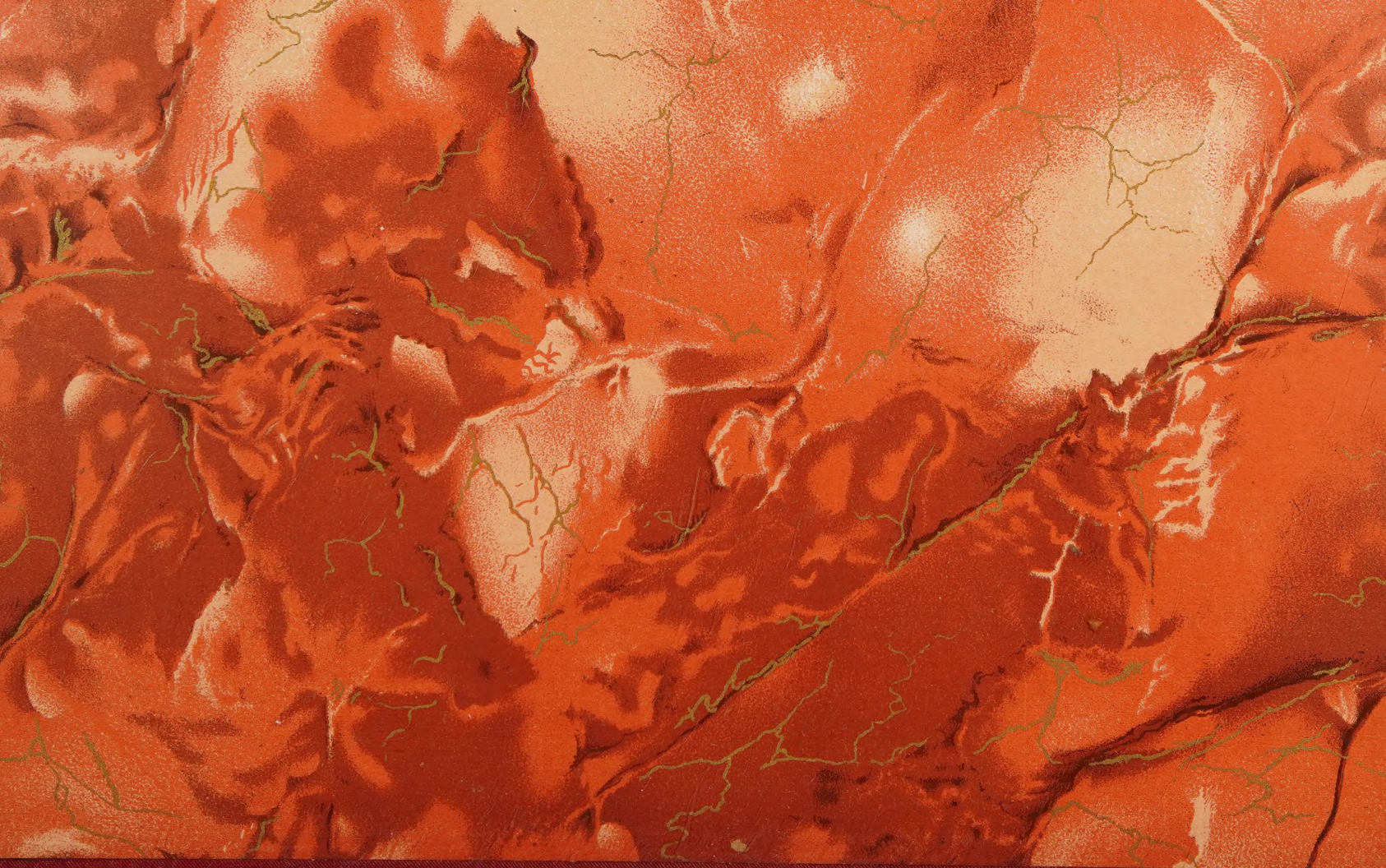
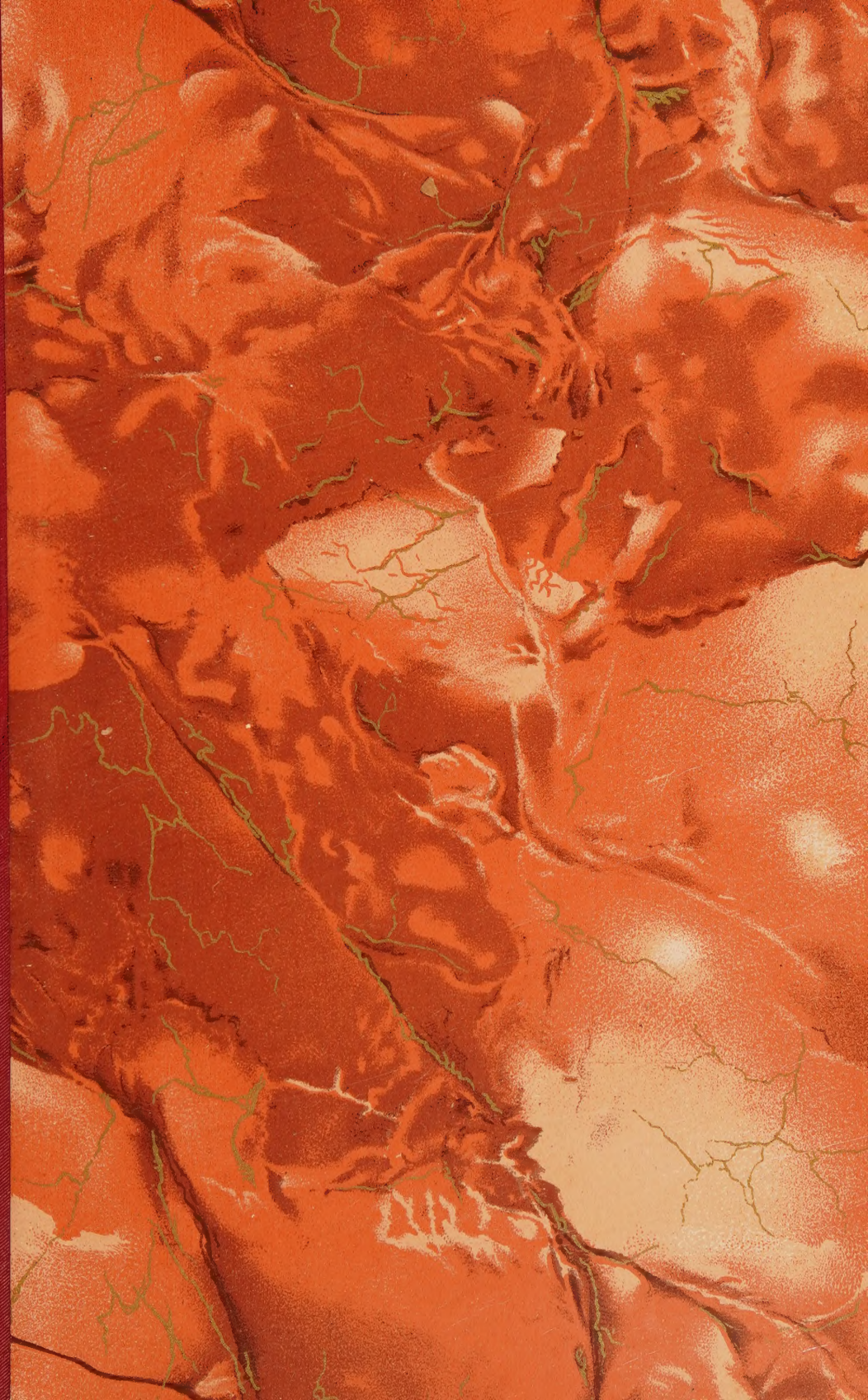
I will not weary you with too many statistics. If you are interested in pursuing such a line of inquiry, get the monthly summary of the bureau of statistics from Washington. You will see from the figures which you will find there, for instance, that our foreign trade, which ten years ago footed $1,500,000,000, was this year $2,450,000,000. Our exports of agricultural products may not increase much from present figures, but it is safe to say that our increasing command of foreign markets for our manufactures will perhaps bring the total of our foreign trade to $3,000,000,000 in the next decade. You will see that national bank loans and discounts, which were under $2,000,000,000 ten years ago, are now $3,725,000,000. A similar increase would carry us above $4,500,000,000 in national bank loans ten years hence. Let us hope those loans

will not increase with unconservative rapidity. Bank clearings of the country have increased two and a half times in ten years. If progress were to continue at this rate, we would show bank clearings of more than $200,000,000,000 at the end of the next ten years. You will find that the total mineral production of the United States has increased in value from $650,000,000 to double that figure. If there is reason to suppose that this increase will continue, we will yet make a record of $2,000,000,000 as the annual product of our mines. Our production of steel has doubled in ten years. The value of the product of our cotton mills has increased fifty per cent. The volume of business, as measured by the receipts of the post office department, show almost a hundred per cent increase, those receipts coming up from $75,000,000 in 1894 to $144,-000,000.

If we look abroad, we see England struggling under most adverse conditions, a great portion of her industrial population actually underfed, and a million people receiving aid under her poor laws. We see in France a nation grown rich by thrift, a nation where economy has become a disease, and in the growth of it, all initiative for new accomplishment has been lost. In Italy we see a great industrial awakening, but conditions still so hard that a large percentage of our 800,000 immigrants annually come from that country. In Germany we find a barren land yielding from the fields most meagerly and from the mines hardly at all, but with a population whose energy, intelligence and education has built, out of most discouraging conditions, a vast industrial organization which is our one real competitor in the markets of the world. If we will accept from the Germans something of their scientific methods, their carefulness, their thoroughness and their willingness for hard work, and bring such qualities to bear upon our own resources, the figures which I have been quoting as possibilities of the future will yet look small.

These statements are generalities intended to apply only over considerable periods. We are always in danger of overdoing, and we may for the moment, perhaps, have already made that error, for prices have shown most substantial recovery—a recovery certainly in advance of what

would be warranted by the present actual conditions. It is safe to say, however, that we are to-day in a sound financial position. Bank reserves are ample—at least national bank reserves are. Bank loans and discounts are not of a character to offer grounds for any general criticism. We have probably fully paid off the foreign indebtedness in the shape of finance bills which two or three years ago had reached large totals. We are in a position to command international credits and to bring gold to strengthen our reserves, if we should need it. We have every year a corn crop that is worth a billion dollars, a cotton crop worth $600,000,000, and a wheat crop worth $412,000,000. The value of these three crops alone every year is fully $2,012,000,000, which compares with the value of these same crops ten years ago of $1,067,000,000.

We have learned some valuable lessons in finance, and the memory of recent years reminding us of the results of the mistakes made at the height of the boom period is still keenly enough in our minds to warrant the belief that we will administer our financial affairs with a fair degree of common sense for some time to come. We have learned that there is not a new political economy, but that, in spite of our vast resources, our growing wealth and our recuperative power, we must obey the same old sound laws of finance and commerce that have long ruled.

AGGREGATE WEALTH OF THE PEOPLE OF VARIOUS NATIONS